J. Perinat. Med. 2019; 47 (Suppl) ● Copyright © by Walter de Gruyter ● Berlin ● Boston. DOI 10.1515/jpm-2019-2500

14th World Congress of Perinatal Medicine (WCPM)

September 11-14, 2019, Istanbul, Turkey

ICEC - Istanbul Lütfi Kırdar Convention and Exhibition Centre

www.wcpm2019.org

INVITED SPEAKERS ABSTRACTS

S1 - PITFALLS IN DIAGNOSIS AND TREATMENT FOR ADHERENT PLACENTA

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Definition

Patients with adherent placenta (AP) have many pitfalls in obstetrics. Adherent Placenta, including placenta accreta, placenta increta and percreta, occurs as a result of placental villi penetrating the myometrium through a defect in the decidua basalis. Adherent placenta cases consist of placenta accreta ~75-78%, placenta accreta ~15-18% and placentae percreta ~5-7%. The incidence of Adherent Placenta (AP) was found 1 in 172 in 2016 and tends to increase continuously in parallel to cesarean section.

Pitfalls in Adherent Placenta

The patients with adherent placenta carry many life-threatening risks. Sudden massive hemorrhage, patient neglect, patient being away from the operation center or transferred in the critical situation, difficulty in transport, inadequate surgical team and medical facilities, inadequate blood and blood products support and undiagnosed cases are the main traps in the adherent placenta.

Diagnosis

The accurate diagnosis of adherent placenta depends on the following conditions: Determination of risk factors, the experience of the sonographer who examined the patient and the quality of the device used, such as 2D, 3D or real time 3D (4D) sonography. In addition, examination methods such as TVS, TAS or Color Doppler sonography are important in the diagnosis. The diagnosis of adherent placenta can be made by transvaginal sonography after detection of gestational sac at the beginning of pregnancy and definitive diagnosis can be made until 12 week of gestation. Recurrent cesarean section, myomectomy, endometrial damage, uterine artery embolization, maternal age, multiparity and uterine surgery are major risk factors for adherent placenta.

What to do in case of emergency?

Great vessel access, fluid replacement should be started, blood and blood products must be provided. If there is massive vaginal bleeding, balloon tamponade should be applied. If the facilities are insufficient, surgery should not be performed and patient should be transferred under optimal conditions possible. If AP is not diagnosed before cesarean section, the surgeon should request help from an experienced surgeon immediately. Relaparotomy should not be performed by the same surgeon without the help of an experienced surgeon.

Treatment (Surgical Approach)

AP is a potentially life-threatening obstetric condition that requires a multidisciplinary approach to be managed. If the patients with AP are followed and treated by experienced surgeons in multidisciplinary tertiary centers, the maternal morbidity and mortality can be reduced. AP surgery is performed in two ways such as radical and conservative (complete and partial). These patients should be operated by an experienced team in appropriate centers.

Our Recommendations:

- Adherent placenta should be diagnosed in the first trimester.
- All patients who have undergone uterine surgery should be evaluated for adherent placenta.
- AP patients should be examined at least once by an experienced specialist.
- AP patients should not be away from the operation center.

- Operations should be done in appropriate centers.
- Operations should be performed by an experienced team.
- Complete conservative surgery should be the first option in all patients.

S2 - PRENATAL AND POSTNATAL CONSEQUENCES OF FETAL STRESS

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Fetal development and growth are influenced by the intrauterine environment. A large number of factors can alter the intrauterine environment and lead to fetal stress. Maternal undernutrition or placental insufficiency and intrauterine growth restriction, maternal emotional stress or stressful life events, as well as fetal pain may trigger the stress response of the fetus. The neuroendocrine stress axis operates in the fetus from midgestation and includes the production and secretion of the corticotropin releasing hormone, adrenocorticotropic hormone and cortisol. Fetal glucocorticoid overexposure affects neurodevelopment, as well as the development of many organs and organ systems, and has lifelong consequences. In response to an adverse intrauterine conditions and prenatal stress, the fetus is able to adapt its physiology to promote survival. However, this adaptation can result in permanent changes in tissue and organ structure and function as well as metabolic changes. It has been shown that the underlying etiology of some of the most common diseases of the modern society, such as hypertension, obesity, diabetes and coronary heart disease, has been traced in intrauterine environment. Further, there is experimental evidence that increased maternal care and environmental enrichment can compensate for prenatal stress-induced effects. Recent data have also indicated gender differences in vulnerability to prenatal stress. Finally, stress-free intrauterine environment is crucial for normal prenatal and postnatal growth and development, as well as good health later in life.

S3 - FETAL CRANIUM AND FACE AT 13 WEEKS SCAN

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Designates the description of the embryonic anatomy, the normal anatomic relations and the development of abnormalities as visualized by ultrasound
To confirm the presence of normal anatomy or to make the diagnosis of an anomaly, we need knowledge of the normal embryonic development, including the appearance of the normal embryo.
Embryo = to grow (Greek) up to 9 weeks
Fetus =off spring in Latin from 9 weeks there after
The anterior part of the neural tube expands to form the brain
The neural tube goes on to form all parts of the brain
The structural organization of the brain: the barin begins as a hollow tube and remains hollow
5 regions of the brain are formed during development
The cavities of the brain are the ventricles
At the Eighth week (7weeks0d-7wks-6d)
Embryo external form:
The embryonic body appears as a triangle in the sagittal section.
The embryonic body is slender in the coronal plane. The limbs are short, paddle-shaped outgrowths
CNS:
The relatively broad and shallow rhombencephalic cavity is always visible from 7 weeks onwards. It then has a well-defined rhombic shape in the cranial pole of the embryo.
At the Ninth week (8wks0d-8wks6d)
CRL=15-22mm
CNS:The brain cavities are easily seen as large ‘holes’ in the embryonic head.
No falx cerebri or choriod plexus at least in the first half
In sagittal planes the forebrain vesicles (telencephalic ,diencephalic, metencephalic) are seen.
Limbs: both upper and lower buds are clearly seen at this stage
At the Tenth week (9wks0d-9wks6d)
Brain: CNS
The hall mark of the 10th week is the Falx and the echogenic choroid plexus
Mid sagittal plane depicts tortous ventricular system
Telencephalic vesicle leading to Diencephalon followed by the cephalic flexure between the Diencephalon and the meten cephalon (cerebellum) then the myelencephalon (medulla oblongata and finally the rhombencephalon (hindbrain
At the 12$^{th\ week}$ (11wk0d-11wk-6d)on words till the 14th week (13wk0d-13wk-6d)
CRL= 54-87mm .The ventricular system is obvious, cerebellum, cisterna magna (the posterior fossa) are seen. At this time the vermis is not completely closed. The complete development of the cerebellum will be completed at 17 weeks gestation
What is the clinical application?
Cavities appearing in the brain are mirror image to the embryological development of the CNS and allowed us to better understand sequential stages in development
We can jude on cranium intactness, proper cleavage cleavage of the forebrain with the appearance of the falx as well as looking at the development of the posterior fossa to diagnose open spina bifida
Check list for the cranium should include:
Intact cranium
Falx cerebrai

Choroid plexus filling the ventricles: butterfly appearance
How comment on the posterior fossa
Double line in tilted axial plane
Intracranial translucency in mid sagittal view
What are the cranial anomalies that coud be diagnosed at this age
Anencephaly
Holoprosencephaly
What are the potentials for the diagnosis of open spina bifida based on the cranial sequel of open spina bifuda
In all cases of OSB
1-a thickening of the brain stem, a shortening of the distance between brain stem and occipital bone, and an increase in the ratio of brain stem diameter to BSOB distance to greater than 1 are observed.
2-When the tilted axial plane is used and the “single line” sign is observed, this represents the sonographic cluster of early first trimester diagnosis
of OSB
face at 13 week scan

1- Retronasal traiangle
2- Mandibular gap
3- Maxillary gap

Conclusion
Sonoembryology paved the way for more understanding of the embryological stages of the fetal organs including the CNS.Brain vesicles and ventricles embryological stages of development can be appreciated like mirror images in early TVS.It helped a lot in better understanding and following up this important stage of evolution to the full sized brain
By 11-13 weeks we are able now to document integrity of the cranium as well as proper cleavage of the fore brain .This enabled us to diagnosis anomalies involving these parts e.g. anencephaly and holoprosencephaly
The dynamic growth of the brain limits the full diagnosis of abnormalities involving these areas specially the posterior fossa. However we are now able to highly suspect the presence of OSB by many related U/S signs .The future of U/S is still have its fascinating aspect in showing more and more of the secrets of the early scan and 13 weeks scan

S4 - IS THERE A PLACE FOR BIOLOGICAL THERAPY IN FETAL MEDICINE?

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Keywords:
Stem cells, platelet rich plasma, perinatal disease, fetal health

Major advances have been made in the understanding of the connection between the mothers' health and fetal disease pathogenesis. The changes etiologically and pathophysiologically responsible for the perinatal mortality and morbidity can often be initiated in the preimplantation period, in relation between the embryo - the endometrium. The detection of disturbances of endometrium in which specific immune components have a central role has opened a possibility for application of biological targeted therapy. The aim of such treatment is to modify early the complications in the fetal environment that could later lead to a perinatal disease. The use of new biotechnological achievements based on autologous sources such as platelet-rich plasma and bone marrow derived stem cells, provide range of therapeutic strategies for endometrium therapy. Platelets contain a significant amount of growth factors that have positive effects on local tissue repair and endometrial receptivity, growth and thickness. Another source of secreting factors used in patients with poor endometrial growth, aimed to improve lining and endometrial vascularity for implantation are bone marrow stem cells. Preparing the proper environment for the fetus to grow in, could help prevent the number of perinatal diseases. Biological therapy has found new applications in fetal therapy as well as in the treatment and prevention of mother disorders. The isolation of the stem cells from amniotic fluid provides the possibility of developing direct fetal therapy in different fetal disorders (neurological disorders, the intrauterine growth restriction). Development of biological autologous fibrine tissue adhesives enables the treatment of the premature rupture of the amniotic sac. Also, blood loss created as a consequence of disturbed placental adherence can be solved without operative intervention using biological autologous fibrine adhesives. Furthermore, the remote complications related to the change of pelvic floor, as a consequence of childbirth (vaginal and uterine prolapse, the urinary incontinence) can be prevented by the peripartal local application of growth factors and/or stem cells. Development of biological subcellular therapies further increases the possibility of application in the fetal period.

S5 - TROMBOPHILIA IN MOTHERS AS A RISK FACTOR OF NEONATAL THROMBOSIS

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Objectives
Neonates are the pediatric population at highest risk for development of thrombosis (VTE), and the incidence of the neonatal thrombosis is increasing. Our aim to indicate the association between thrombophilia (genetic and acquired) in mothers and neonatal thrombosis

Methods
We observed 26 cases of neonatal thrombosis. In each case, we examined the mother for hereditary and acquired thrombophilia (FV Leiden, Prothrombin gene (G20210A), MTHFR (C677T), PAI-1 polymorphism and circulation of APA (LA, Cardiolipin Antibodies, Beta-2 Glycoprotein 1 Antibodies, Prothrombin Antibodies) and neonates for genetic thrombophilia. As a control we examined 50 pregnant women with uncomplicated current pregnancy for hereditary and acquired thrombophilia and 50 theirs neonates for hereditary thrombophilia.

Results
Neonatal thrombosis of the following localizations was detected: DVT (15), umbilical cord thrombosis (3), renal vein thrombosis (1), Catheter-associated thrombosis (4), ischemic stroke (1), fetal thrombotic vasculopathy (2).
There were no significant associations between prothrombin gene G2021A and Factor V Leiden mutation in two groups. Strongly significantly higher odds for neonatal thrombosis are present in patients with PAI, MTHFR gene mutation (heterozygote and homozygote pattern) and circulation of antiphospholipid antibodies. Higher odds are present for Protein S deficiency.

Table 1. Thrombophilia in mothers (genetic and acquired) and neonates (genetic only)

Factor	Mothers (n=26)		Neonates (n=26)		Control Mothers (n=50)		Control Neonates (n=50)	
FV Leiden homozyg	1	3,85%	1	3,85%	1	2,00%	1	2,00%
FV Leiden heterozyg	1	3,85%	2	7,69%	2	4,00%	1	2,00%
Prothrombin homozyg	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Prothrombin heterozyg	1	3,85%	1	3,85%	2	4,00%	1	2,00%
MTHFR homozyg	7	26,92%	5	19,23%	5	10,00%	4	8,00%
MTHFR heterozyg	14	53,85%	13	50,00%	8	16,00%	7	14,00%
PAI-1	17	65,38%	16	61,54%	10	20,00%	11	22,00%
Multigenic	**10**	**38,46%**	**9**	**34,62%**	**6**	**12,00%**	**5**	**10,00%**
Protein S deficiency	2	7,69%	1	3,85%	1	2,00%	0	0,00%
Protein C deficiency	1	3,85%	0	0,00%	0	0,00%	0	0,00%
Antithrombin deficiency	0	0,00%	0	0,00%	0	0,00%	0	0,00%
LA	3	11,54%			0	0,00%		

Cardiolopin AB	5	19,23%		2	4,00%
B2Gp1a AB	9	34,62%		4	8,00%
Prothrombin AB	7	26,92%		5	10,00%
Combined thrombophilia	**8**	**30,77%**		**3**	**6,00%**

Conclusion

This case-controlled study demonstrated significantly higher prevalence of genetic and acquired thrombophilia in women and neonates with thrombosis compared with women with normal pregnancies. Furthermore, strongly significantly associations between PAI and MTHFR mutations and neonatal thrombosis are demonstrated. The association between neonatal thrombosis and FV Leiden and Prothrombin gene G20210A mutations is controversial. Our study showed a high prevalence of multigenic (38,5%) and combined thrombophilia (30,8%) in thrombosis group compared with 12% and 6% in the control group.

Fetal thrombotic vasculopathy is a disorder characterized by thrombosis of the fetal vessels and/or vessels of the fetal surface of the placenta leading to vascular obliteration and hypoperfusion. In our study both cases of FTV was associated with combined thrombophilia and septic complication. FTV associated with high incidence of hypoxic-ischemic brain injury and antenatal fetal death or early neonatal death – severe perinatal outcomes. FTV should be considered as one of the possible causes of renal and other venous thrombosis in newborns.

Thus, pregnant women with genetic or acquired thrombophilia belong to a high-risk group for the neonatal thrombosis. Our study included a small number of patients, to evaluate a more accurate relationship required to perform randomized controlled trials and to determine potential benefits of administration of LMWH in order to provide prophylaxis of neonatal thrombosis in risk groups with genetic and acquired thrombophilia.

All patients with fetal growth restriction and severe fetal hypoxia (including cases of diagnosed maternal thrombophilia) should be excluded and screening of newborns for thrombosis and thrombophilia is recommended.

S6 - DUCTUS VENOSUS AGENESIS AND FETAL MALFORMATIONS: WHAT CAN WE EXPECT? – A SYSTEMATIC REVIEW OF THE LITERATURE

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Objectives

The ductus venosus agenesis (DVA) is a rare condition with a variable prognosis that relies partly on the presence of associated conditions. The purpose of our study was to analyze the literature regarding the postnatal outcome of fetuses with DVA associated with fetal malformations, in order to discuss the best management options for couples.

Data sources

We performed a systematic review of the literature of MEDLINE and SCOPUS electronic databases in a 25-year period from 1992 to September 2017.
Results: We found 340 cases of DVA associated with fetal abnormalities. The most common chromosomal abnormalities were: monosomy X (12/48, 25%), trisomy 21
(11/48, 22.9%) and trisomy 18 (6/48, 12.5%). From the 340 cases with DVA, in 31 cases the umbilical venous shunt type was not reported. Of the fetuses, 60.8% (188/309) had an extrahepatic umbilical venous drainage while 39.2% (121/309) presented an intrahepatic connection. The DVA was associated in 71 cases (23.0%) with cardiac abnormalities, in 82 cases (26.5%) with extracardiac abnormalities and in 85 cases (27.5%) with both cardiac and extracardiac abnormalities.

Conclusion

DVA associated with both cardiac and extracardiac malformations may confer a poorer fetal outcome, a clinically relevant fact that should clarify what can be expected from this entity and help prenatal counseling.

S7 - ROLE OF VITAMIN D IN PRETERM BIRTH

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Abstract

Vitamin D is a pleiotropic secosteroid hormone important for health and disease prevention. Vitamin D has potent effects on immune responses and influences both the innate and adaptive arms of the immune system. Immune adaptations are vital for successful pregnancy outcome and vitamin D likely acts to promote implantation due to its role in inflammatory pathways and immune function. Adequate vitamin D intake is essential for maternal and fetal health during pregnancy.

Since vitamin D has immunomodulatory and anti-inflammatory effects, such as the regulation of production and function of cytokines and neutrophil degranulation products that is important and relevant to prevent microbial invasion one may expect a protective effect on preterm birth risk. The precise mechanisms associated with vitamin D-mediated antibacterial and/or antiviral activity in the placenta have yet to be fully defined.

Vitamin D deficiency is a major public health problem worldwide in all age groups. Severe deficiency seems to be most common in countries with sun exposure all year around (the Middle East, South Asia, and Southeast Asia). In Jakarta, Indonesia, among 234 first trimester pregnant women, 99.6% have deficient vitamin D status.

A recent study in 81 Indonesian women could not show a significant difference of 25(OH)D3 maternal serum and umbilical cord level between term and preterm births. However, there are moderate correlation of 25(OH)D3 in maternal serum and umbilical cord. Whereas in a Cochrane Review from three trials involving 477 women suggest that vitamin D supplementation during pregnancy reduces the risk preterm birth compared to no intervention or placebo (8.9% versus 15.5%; RR 0.36; 95% CI 0.14 to 0.93, moderate quality).

In conclusion, the available data indicates that vitamin D deficiency is a global public health problem, particularly in those from the Middle East and Asia. New studies have provided more evidence on the role of Vitamin D in preterm birth. However, the precise mechanisms of vitamin D to prevent preterm birth and the vitamin D requirements and optimal timing of supplementation are still unclear. Practice guideline and more researches are needed.

S8 - CAESAREAN SECTION AN EPEDMIC OF OUR TIME; STRATEGIES TO REVERSE THE TREND

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The human birth process has evolved over the years from being completely natural to a process in which interventions were introduced. The interventions ranges from induction of labour to to artificially initiate the labour process, augmentation to improve the efficiency of the process to instrumental and assisted deliveries. The climax of interventions in the human birth process is caesarean section[C-section].

Caesarean is section is indicated in maternal, fetal interests and sometimes in the interest of both. The relative safety of the process and changing life styles have driven the rates of C-section to an unprecedented high levels. From as high as 50% of deliveries in Brazil, 46% in China, 32% in the US, 38% in Cyprus, 33% in Australia and 27% in Nigerian tertiary hospitals. Caesarean section however is associated with immediate and remote maternal and fetal complications including morbidity and mortality for the mother and infant. This has generated a global concern by international bodies such as the World Health Organization[WHO] and Professional societies and it has also lead to an outcry and calls for a reversal for the escalating rise in the rates.

There are various measures both old and new that can be put in place to address unacceptable high caesarean rates. General measures include education, improving nutrition, vaccination against diseases and addressing harmful life styles. Procedures such as; Induction of labour, Augmentation of labour, Active management of labour, Trial of labour, Vaginal Birth after C-section, External cephalic version and Assisted breech delivery. Assisted vaginal instrumental delivery and Destructive vaginal operation which are now being abandoned can if reintroduce reduce caesarean section rates. Today in a quest to reduce C-section rates globally new ideas are introduced; ‘’ Keeping up the pressure’’ by subjecting decisions to C-section to rigorous screening and review before the final approval for the procedure has been used with good result. This has the potential of reducing C-section rates. ‘’Fee equalization’’ between C-section and vaginal delivery is another veritable instrument in the efforts to reducing C-section rates. The fear of litigation is one of the major factors driving C-section rates, some health facilities have introduced ‘’ Patient Compensations Funds’’ to offset the cost of litigations and encourage physicians to decide on method of delivery based on their genuine clinical judgment not based on fear and attendant possible litigation.

Adopting some the methods, procedures and approaches will potentially reduce the current C-section rates and reduce some of the maternal, fetal and infant complications of the procedure. The need for further efforts aimed at creating new ideas to address the issue should be a continuous one and in the long run achieve an acceptable C-section rates globally as advocated by WHO and other international bodies.

S9 - FETAL OVERGROWTH: POSSIBLE GENETIC IMPLICATIONS

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Fetal growth anomalies can be correlated to genetic sindromes. The sooner fetal growth anomalies are manifested, the major is the correlation to genetically determined syndromes. In fact, the most common Trisomies (13, 18, 21) are caracterized by anomalous Crown-Rump Length (CRL) values as early as the first trimester.

The choice which growth curve to employ can be of fundamental importance for diagnosing fetal growth anomalies. Many studies have focused their efforts on establishing a more efficient growth curve; currently, the Hadlock algorithm is the most sensible and the growth curves suggested by the intergrowth study are those best devised methodologically and with a major number of cases available.

Further accessory parameters such as the measurement of the fetal soft tissue (midhomuerus, shoulder, abdominall wall, thigh, peribuccal area) could be useful. Additionally, correct evaluation of the amniotic fluid and the fetal flussimetry (diabetes, hypertension, etc.) is mandatory to exclude obstetrical pathologies.

Fetal overgrowth is an indication to look for further associated anomalies. Increased Abdominal Circumference (AC) could suggest visceromegaly rather than an increase of adipose tissue. Visceromegaly is characteristic of a number of genetic syndromes and is manifested in the 3rd trimester of pregnancy.

When detected, the Beckwith-Wiedemann syndrome should be suspected. This syndrome is mainly associated with macroglossia as well as omphalocele often hard to diagnose due to its small dimensions.

The Perlman syndrome should also be taken into account, although it is associated to major fetal anomalies often diagnosed in the second trimester (facial dysmorphia, macrocephaly, fetal ascites).

Fetal macrosomia associated to macrocephaly and increased fronto-occipital diameter should lead us to suspect a Sotos syndrome which is often tricky to diagnose during prenatal life because it is associated to other major fetal anomalies only in 3% of all cases.

The Golabi syndrome, at the expense of an AC increase, is associated with a shorter femur length. A number of cardiopathies or diaphragmatic hernia can be present as well and this may be useful for its identification but they are not always observed.

S10 - CSF DIVERSION FOR HYDROCEPHALUS IN INFANTS THAT UNDERWENT PRENATAL REPAIR OF MYELOMENINGOCELE

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Introduction

The classic treatment of hydrocephalus (HCP) has been diverting CSF by means of a shunt, typically a ventriculo peritoneal shunt. For children with myelomeningocele (MMC), at least 50% of shunts will fail during the first years of life. Endoscopic third ventriculostomy (ETV) has been an alternative treatment for many children with hydrocephalus with overall success rates between 50-60%. The surgery consists of creating an ostomy through the floor of the third ventricle into the prepontine cistern with an endoscope, thereby allowing CSF to bypass the obstruction into the subarachnoid space for normal absorption. Specifically for MMC, the success rates of ETV have been around 35-75%.
In the past decade much attention has been focused on the addition of a complete choroid plexus cauterization (CPC) to the ETV.

Objectives

To understand the value of ETV or ETV/CPC in treating HCP in infants that underwent prenatal repair of MMC.

Methods

A literature review of contemporary relevant articles was performed.

Discussion

It has been reported that ETV/CPC has a significant better success rate than ETV alone. A recent large series of ETV/CPCs showed an overall success rate of 59% and 84% for 19 of those patients that had MMC. ETV/CPC seems to have better success rates when performed after the age of 6 months, when the Choroid plexus is widely cauterized, and when the starting ventricular size is on the small side. Only one study has reported on having performed ETVs on babies that were operated in utero for their MMC. ETV success rate on 24 patients was 45.8%.

Conclusions

ETV/CPC is a good alternative for the treatment of HCP in children with MMC with recent evidence of having better success rates than with shunting. It remains to be seen whether that success rate can be mirrored in infants that underwent prenatal repair of MMC.

S11 - ULTRASOUND IN ASSESSMENT OF INTRAPARTUM INJURES

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Objective

During pregnancy the uterus shows dynamic activity related to plasma concentrations of mediators that influence myometrial contractility, namely oxytocin and prostaglandins and their receptor.

Morphological and functional properties of the scar on the uterus in everyday practice are largely a subjective estimate, based on palpation, bimanual inspection and ultrasonic thickness measurement and assessment of scarring. In 1875 Bandl was introduced into clinical practice the term the lower uterine segment (LUS). In 1905 Aschoff described the upper border of the LUS and the corpus as the ostium internum anatomicum and below the cervix as the ostium internum histologicum.

Material and methods. The rate of attempted vaginal birth after previous cesarean delivery has decreased, while the success rate of such births increased. We conducted a prospective study of 108 pregnant women. Analyzed were: shape scar thickness (thickening), continuity, border scar out, echoing the structure of the lower uterine segment and scar volume.

Criteria for inclusion in the study:

Pregnant women who have previously given birth by Caesarean section once with an unlimited number of vaginal deliveries.

* Pregnant women who had hysterotomy by low transverse section.

* Pregnant women whose presentation of fetus was head position and in fetuses up to 2500g of body weight. Single fetus pregnancies without fetal anomalies. Gestational age older than 35 weeks.

By ultrasound examination of uterine scar were analyzed:form of scarring,thickness (thickening)., continuity.

Results

The study showed that scar thickness of 3.5 mm or more, the homogeneity of the scar, scar triangular shape, qualitatively richer perfusion, and scar volume verified by 3D technique up to10 cm are attributes of the quality of the scar.

Conclusion

Based on the obtained results we conclude that ultrasound evaluation of the quality of the scar has practical application in the decision on the mode of delivery in women who had previously given birth by Caesarean section. The rate of spontaneous labor after previous cesarean section is decreasing. Color Doppler is the “gold standard” in assessing the quality of the scar after a previous cesarean section and ability for spontaneous labor.

The thickness of the scar after a previous cesarean section, or “cut off” is 3.5 mm and more. The homogeneity of the scar is an attribute that contributes to the quality of the scar. Triangular shape of the scar in the assessment of scar quality. Qualitatively richer the quality of perfusion around scar in assessing the value of the scar Volume scar verified 3D is a new technique in the evaluation of the most important attribute of quality of the scar and his “cut off” is up to 9 cm.

Key words: lower uterine segment, ultrasound, intrapartum injures, cesarean section.

S12 - FAMILY PLANNING, PREGNANCY AND DELIVERY IN MULTIPLE SCLEROSIS – IS IT SAFE?

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Relapsing-remitting multiple sclerosis is an autoimmune-mediated neurodegenerative central nervous system disease affecting young adults with increased incidence among women during their reproductive years. Neither multiple sclerosis itself nor treatments with immunomodulatory drugs reduce fertility, but women with the disease nevertheless have fewer children than other women. Family planning in patients with multiple sclerosis is influenced by the patient neurological disability and disease related symptoms. The disabling effects of the disease may make it physically hard to carry a pregnancy. Muscle weakness and coordination problems may increase the likelihood for falls, fatigue and impairment in urinary bladder control may worsen, and decreased sensation in the lower body that may interfere with the process of labour. Therefore, pregnancy in multiple sclerosis has been a matter of controversy for many years and in the past women diagnosed with the disease were discouraged from conceiving. Moreover, in the postpartum period, patients with multiple sclerosis experience accelerated disease activity with the appearance of a new relapse. During pregnancy as the immune system is suppressed, disease activity and the frequency of acute relapses decrease with a 70% reduction in relapse risk in the third trimester of pregnancy. However, in the immediate postpartum period when the immune system is over-activated, a corresponding rebound increase in relapse risk occurs in the first three months postpartum. In relation to labor outcomes maternal multiple sclerosis was not associated with assisted vaginal delivery or caesarean section as compared to healthy population. The effect of childbirth on long-term disability progression will be discussed.

S13 - MEDICAL AND ETHICAL ISSUES AT THE LIMITS OF VIALBILITY

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With a dramatic improvement in survival of infants bom between 23 and 26 week of gestation, survival is no longer a "medical miracle" but a reality that needs to be evaluated with all of its long term potential implications for parents and for society at large. Unfortunately, at the lowest limits of viability, survival is often associated with significant short and long term complications. Hence, it is of paramount importance that extensive consultation between parents sand physicians take place prior to delivery. This is possible in the majority of situations. Such consultation can avoid ethical and medico-legal problems. The field of bioethics throughout history has been characterized by occasional tensions between lay persons and physicians relating to decision making. Bioethics is not only under the influence of medicine but is it is also affected by other changing forces such as public opinion, political ideologies, religious beliefs, cultural background and economic conditions. The legal implications of poor communication between parents and physicians cannot be understated. Parental decisions for full medical intervention can widely vary between 23 and 26 weeks of gestation. It is also evident that the physician's personal beliefs can seriously impact on parental decision. Data presented to the parents on survival and potential complications should reflect local epidemiological information and not general statistics. The prevailing view is that decisions at the limits of viability, when outcome is uncertain or ambiguous, should be the prerogative ofthe parents. On the other hand, the physician's responsibility is to protect the life of the infant when unreasonable demands are made by the parents and which do no serve the best interest of the infant. In the final analysis, effective communication between obstetrics, neonatology and parents can prevent conficts and suffering.

S14 - EPIDEMIOLOGY OF MULTIPLE PREGNANCIES IN TURKEY: PROBLEMS AND SOLUTIONS?

Güngören A.

Multiple pregnancies are among the conditions that significantly increase maternal and perinatal morbidity and mortality. Unfortunately, inadequaterecordingsystem in developing countries leads to insufficient evaluation of data.

In the USA, twins consist of 2-4% of all births, an increase of 76% from 1980 to 2009. Rates differ in different countries of theWorld such as 8/1000 in India, South Asia, 9-16 / 1000 in Latin America and USA, >17 / 1000 in Africa. The highest rate is in Nigeria and the lowest is in Japan. It has increased from 11.7 / 1000 to 19/1000 in European countries in the 2000s. The most comprehensive study on this subject in our country was published by Yayla et al, posted in 2008, according to this study, multiple pregnancy rate was 1.94% and twins' contribution was 1.86%. In another study which is still in the publication stage, Özçil MD and Güngören A found that the twin rate was 1.79% when they evaluated multiple pregnancies admitted to their institutions in 2011-2017.

Two main reasonsforthe increase in multiple pregnancies are advanced maternal age and advanced reproductive techniques (ART). In many countries today, babies born with ART account for 1-4% of all newborns.

Multiple pregnancies are associated with maternal and fetal risks, whether spontaneous or assisted reproductive techniques occur. Maternal risks include anemia, preeclampsia, gestational diabetes, myocardial infarction, heart failure, stroke, venous thromboembolism, pulmonary edema, cesarean section, hysterectomy. Fetal risks include IUGR, preterm labor, selective fetal growth retardation, TTTS, umbilical cord injuries, fetal death. Neonatal risks include respiratory distress syndrome, necrotizing enterocolitis and intraventricular hemorrhages due to prematurity.

The most important way to reduce morbidity and mortality in multiple pregnanciesis early diagnosis and records from the beginning of pregnancy. In addition, single embryo transfer in the use of assisted reproductive techniques, the use of a standard pregnancy report card, communication between institutions and physicians through the computer system, proper collection of data within a national data diagnosis to be established and monitoring of risky twins in perinatology centers will reduce the negative outcomes to an acceptable level.

S15 - WHY CONSIDER BLOOD TRANSFUSION IN PREGNANT / POSTPARTUM WOMEN?

Shander A.

During pregnancy, The WHO defines anemia as a hemoglobin (Hb) concentration < 11.0 g/dL in the first and third trimesters and Hb < 10.5 g/dL in the second trimester. Multiple factors may lead to anemia during this period, namely nutritional deficiencies, hemolysis and abnormal hemoglobin synthesis, blood loss, defective iron absorption and metabolism and chronic conditions. Iron-deficiency (ID) is the most common cause of anemia in pregnancy. The spectrum of ID ranges from iron depletion, to deficient erythropoiesis and to iron deficient anemia. The prevalence of ID can be 2 - 2.5 times that of iron deficiency anemia (IDA). The risk factors related to IDA include teenage pregnancy, high parity, multiple pregnancies and reduced inter-pregnancy intervals. Iron deficiency anemia has been linked to negative maternal-fetal outcomes. For mothers, these include reduced working and intellectual capacity, increased susceptibility to infection, higher risk of post-partum anemia and depression. The perinatal outcomes include premature delivery, small for gestational age infants, a highest risk of anemia and poor physical and mental growth during infancy.[1]
Therefore, the diagnosis of IDA and its treatment has a positive impact. Moreover, current guidelines recommend a daily iron supplementation of at least 60 mg of elemental iron after the 16th - 20th week of gestation or sooner if there are any risk factors. The treatment of IDA depends on the severity of the anemia. In mild cases, the primary treatment includes oral iron therapy. In more moderate to severe cases, intravenous iron may be used as parenteral iron that results in a faster increase in Hb levels. If a critical value of Hg is achieved, blood transfusion might be considered depending on the clinical situation. [1]
Postpartum anemia (PPA) is defined as an Hb <10 g/dL within 24-48 h after delivery, although it has also been recommended that PPA be defined as a Hb <11 g/dL at 1 week postpartum and <12 g/dL at 8 weeks. The prevalence of PPA 48 h after delivery is approximately 50% in Europe and 50-80% in developing countries. PPA should be considered severe if Hb is <7 g/dL16. Anemia during the third trimester of pregnancy and PPH are independent risk factors for PPA. Thus, parturient' Hb should be determined when labor starts, unless a recent Hb is available and there are no risk factors for PPH. PPA can be aggravated by altered iron homeostasis and reduced erythropoietin secretion and action in women with a higher postpartum inflammatory response (e.g. caesarean section). Therefore, every effort should be made to correct anemia prior to delivery and women with anemia or at high risk of hemorrhage should be advised only to deliver in hospital where a clear multidisciplinary, multimodal protocol for management of major obstetric hemorrhage is in place. [2]
Postpartum hemorrhage is the most frequent cause of maternal mortality and morbidity worldwide. In high-resource countries, the number of women who require blood transfusions as a result of postpartum hemorrhage ranges from 2 to 30 per 1000 deliveries, and the figure continues to rise. [3] Although blood transfusions are considered as safe, adverse transfusion reactions (TRs) and transfusion-transmitted infections do occur. The spectrum of symptoms ranges from mild, such as febrile or urticarial reactions, to severe; in some cases, reactions can be life-threatening. Deaths linked to TRs have been reported at a rate of 1 per every 100 000 transfused units. This study found the incidence of TRs among women who received a postpartum transfusion of RBCs, plasma, or platelets to be 79 per 100 000 (0.8%), a doubled risk (OR, 2.0) compared with nonpregnant women as shown in the figure below. [3]
Administration of RBC should be carried out cautiously and restrictively and there is no clear hemoglobin cut-off value as to when RBC transfusion is required. A hemoglobin level below 60 g/l seems a reasonable cutoff below which RBC administration should be considered but

not necessarily performed, provided that there is no active bleeding. However, in the case of active and severe bleeding, a hemodynamically unstable patient could benefit from a RBC transfusion, irrespective of hemoglobin level. [4]

Figure

Rate (%) of transfusion reactions in relation to the number of transfused RBC units in pregnant and nonpregnant women.

(Figure published in Thurn L, Wikman A, Westgren M, Lindqvist PG. Incidence and risk factors of transfusion reactions in postpartum blood transfusions. Blood Adv. 2019 Aug 13;3(15):2298-2306)

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S16 - 3D/4D ULTRASOUND IN EVALUATION OF INFERTILE WOMEN

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Recent advances in three-dimensional ultrasound (3D US) have made accurate non-invasive measurements of the follicular, ovarian, and endometrial volumes feasible. Storage capacities, reconstruction of the volume images, and simultaneous viewing of all three orthogonal planes are main advantages of this method in the field of infertility. 3D US is useful in patients scheduled for serial ovarian monitoring in whom planar reformatted sections allow more accurate and objective volumetric assessment of the leading follicles, which are not always spherical. Ovarian volume measurements by 3D US contribute to accurate diagnosis of polycystic ovarian syndrome and prediction of the response to stimulation and estimation of the risk of ovarian hyperstimulation. Transvaginal ultrasound directed follicular aspiration and embryo transfer under 3D US guidance may improve the operator's spatial evaluation and allows precise follicular and/or catheter tip location during the course of interventional procedures. The use of 3D color/power Doppler US after injection of saline solution and/or echo enhancing contrast medium produces high diagnostic accuracy for visualization of the uterine cavity and Fallopian tubes. By providing multiple tomographic sections of the uterine cavity, uterine causes of infertility such as congenital uterine anomalies, submucous leiomyoma, and/or adhesions become easily visible. Quantification of the endometrial volume by 3D US in combination with blood flow studies contributes to assessment of the endometrial receptivity and may have the potential to predict pregnancy rates in assisted reproductive techniques.
Recent introduction of the 3D power Doppler assessment of ovarian reserve might help in better identification of good responders to gonadotropin therapy.

S17 - WHAT DID WE LEARN ABOUT STRUCTURE AND FUNCTION OF FETAL BRAIN?

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Fetal behavior refers to the fetal activities observed or recorded with ultrasonographic equipment. Behavior can be spontaneous, generated by the fetus itself, or elicited in response to external stimulus such as vibroacoustic stimulation. Analysis of the fetal dynamics in comparison with morphological studies has led to the conclusion that fetal behavioral patterns directly reflect developmental and maturational processes of the fetal central nervous system (CNS). In addition, there is a carryover effect of movements from prenatal to postnatal life. There were no movements observed in fetal life that were not present in neonatal life. Furthermore, prenatal-neonatal continuity exists even in subtle, fine movements such as facial mimics. Altered quality of fetal movements might reveal the structural or functional impairment of the fetal central nervous system. Improvement of four dimensional (4D) technology enabled introduction of Kurjak Antenatal Neurological Test (KANET), scoring test for the assessment of the fetal behavior. Our preliminary results have confirmed the usefulness of this test in fetal behavior assessment. The KANET test has potential to detect and discriminate normal from borderline and abnormal fetal behavior in normal and in high-risk pregnancies, which means that it could become a valuable diagnostic tool for fetal neurological assessment. Over 100 fetuses from pregnancies with threatened preterm labor have been studied using KANET in our multicentric program. Recently study with the largest number of fetuses (620 fetuses) where prenatal KANET test has been applied was published. Among the fetuses with abnormal KANET score, most frequently presented were fetuses from the threatened preterm delivery group. Preterm labor accounts for 75% of perinatal mortality and over 50% of perinatal morbidity. Although preterm survives, they are at increased risk of neurodevelopmental impairment. It has been shown that fetal behavior differs in preterm than term infants. Further, fetal behavior differs in neurologically compromised compared to normal fetuses. There are developmental differences between fetuses threatening to deliver early and other high risk fetuses. Preterm infants are at higher risk for cerebral palsy due to prematurity, intrauterine growth restriction, infection or multiple pregnancy. Pediatricians know that they need to wait until the age of 6 months postnatally to diagnose a severe CP and at least 24 months or even longer for a minor non-disabling CP. KANET test and behavioral assessment give new hope in the attempt of early diagnosis of cerebral palsy and provide identification of fetuses at neurological risk from pregnancies with threatened preterm labor.

S18 - ASSESSMENT OF MOTORIC AND COGNITIVE FUNCTION OF FETAL BRAIN BY 4D SONOGRAPHY

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One of the greatest challenges of obstetrical ultrasonography is the better understanding of fetal neurological function. Neurological problems, such as cerebral palsy, are poorly understood and often falsely attributed to intrapartum events, while for the majority of cerebral palsy cases it has been proven that the causative pathway starts long before delivery. Although several attempts have been made to define normal and abnormal fetal neurological function, and to develop a method to assess the integrity of the fetal nervous system, most are still without satisfactory sensitivity.
Fetal behavioral patterns directly reflect the developmental and maturational processes of the fetal central nervous system. It has been suggested that the assessment of fetal behavior during different periods of gestation may provide valuable information about normal and abnormal brain development, and contribute to the early diagnosis of various structural or functional neurological abnormalities. The introduction of three and four dimensional ultrasound (3D and 4D) allowed real time assessment of fetal behavior. Details of the fetal face, and especially movements of mouth, eyes (facial expressions) and fingers, have been made possible with the introduction of 4D ultrasound. KANET is the first method that attempted to use 4D ultrasound to assess and combine parameters of fetal behavior and form a scoring system that can assess the fetus in a comprehensive and systematic approach, in the same way that neonatologists perform a neurological assessment in newborns during the first days of their life in order to determine their neurological status. KANET appears to be able to identify functional characteristics of the fetus that predict normal and abnormal neurological development and hopefully future results of ongoing prospective multicentric studies will provide more information on fetal neurology in the next few years. Such information will be of great value in counseling mothers of high risk pregnancies, for example in cases with a previous child with cerebral palsy, as well as providing valuable evidence for cases of litigation.

S19 - MOST COMMON MISTAKES IN RECURRENT MISCARRIAGES IN TURKEY?

Ekin A.

Common mistakes related to recurrent pregnancy losses (RPLs) in Turkey could be evaluated under the headings of definition, diagnostic tests and management. A diagnosis of RPL could be considered after the loss of two or more clinical pregnancies prior to 24 gestational weeks. The proven causes are diverse, such as cytogenetic abnormality, uterine anomalies, antiphospholipid antibody and endocrine abnormalities. However, the cause of RPL remains unexplained in approximately 50% of couples. It is not suggested to screen for hereditary thrombophilia unless in the context of research, or in women with additional risk factors for thrombophilia. While deregulated maternal immune tolerance could plausibly contribute, as yet, there are no pathognomonic diagnostic criteria for reproducibly identifying a distinct immunological entity. No causal link between infectious agents and RPL has been established, and it is not recommended to test or empirically treat asymptomatic women with RPL. Treatment of possible causes like surgical treatment for uterine septum, submucosal myom, endometrial polyp and severe intrauterine adhesions, cervical cerclage or sonographic surveillance for cervical incompetence, thyroxin supplementation for subclinical or overt hypothyroidism, low dose aspirin and heparin for antiphosphospholipid syndrome and dopamine agonist for hyperprolactinemia should be given. For women with hereditary thrombophilia and a history of RPL, use of antithrombotic prophylaxis is not suggested unless if indicated for venous tromboembolism prevention. Based on current available evidence, preimplantation genetic diagnosis offers no significant benefit over expectant clinical management in terms of live birth, miscarriage, or time to first successful live births. It has also been shown that patients presenting no abnormality on various tests may achieve a good rate of live births without special treatment. Furthermore, recent literature revealed that supplementation with progestogen therapy probably reduces the rate of miscarriage in subsequent pregnancies.

S20 - INTRODUCTION TO POSTPARTUM BLOOD MANAGEMENT FOR OBSTETRICIANS

Froessler B.

Post-partum anaemia is very common, affecting 50% of women in the developed world and up to 80 % in developing countries.(1) Women are affected in many ways. In the immediate post-partum period anaemia will lead to a higher Red Blood Cell (RBC) transfusion rate. After hospital discharge anaemia often lingers due to underlying iron deficiency (ID) for months, causing fatigue, depression and cognitive dysfunction.(2, 3) These symptoms will also affect the infant, as the mothers' ability to parent adequately is impaired.

Prevention of postpartum anaemia is an important goal and must start in the antenatal period. Ferritin screening will allow identification and appropriate management of ID.(4)

Iron therapy will replenish iron stores and iron replete, non-anaemic pregnant women will usually enter labour well prepared. Maternal health education, oral iron, lactoferrin and intravenous iron (IVI) are valuable elements of antenatal management.(5-7)

As postpartum haemorrhage (PPH) is on the rise worldwide an obstetric Patient Blood Management (PBM) approach will offer valuable tools to minimize blood loss and treat anaemia.(8) The high risk parturient has to be identified, discussed and delivery should ideally occur in well-equipped obstetric units. In case of a PPH, obstetric measures, cell salvage, viscoelastic testing and antifibrinolytic drugs, such as tranexamic acid, will assist the clinician to preserve the patient's own blood to improve outcome. Collaboration and communication between the obstetric and anaesthetic team is crucial.(9)

Postpartum anaemia is frequently corrected with RBC transfusion. Well described risks of blood products and the ability of young, generally healthy women to tolerate anaemia should encourage clinicians to adopt restrictive transfusion practice.(10) ID in the postpartum setting is common, worsened by peri-partum blood loss and often overlooked. IVI offers an attractive treatment option with superior outcomes compared to oral iron and RBC transfusion.(11, 12) Postpartum anaemia and iron deficiency are preventable and treatable should they occur. Clinical teams caring for peri-partum women should be aware of treatment bundles to assure the best possible outcome for mother and child.

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S21 - THE METHOD OF CHOICE FOR PREDICTION AND EARLY DIAGNOSIS IN TURKEY

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Pre-eclampsia (PE) is a pregnancy-specific disorder that affects 2 to 5% of all pregnancies worldwide. It is one of the major causes of maternal and perinatal morbidity and mortality. Yearly about 76000 women and 500000 babies die each year from this multisystem disorder. Women in low-resource countries are at a greater risk of developing PE compared with those in high-resource countries.

The traditional preeclampsia screening is based on identifying the risk factors from maternal demographic characteristics and medical history (maternal factors). However, recommended method can identify only 35% of all preeclampsia and approximately 40% of preterm-preeclampsia, at false positive rate of 10%.

An alternative approach to screening for PE, which allows estimation of individual patient-specific risks of PE requiring delivery before a specified gestation, is to use Bayes theorem by combining the priori risk from maternal characteristics and medical history with the results of various combinations of biophysical and biochemical measurements. In the last decade, extensive research studies have been focusing on the identification of four potentially useful biomarkers at 11–13 weeks of gestation: mean arterial pressure, uterine artery pulsatility index, serum pregnancy-associated plasma protein A, and serum placental growth factor. The detection rates of preterm PE and term PE were 75% and 38%, respectively, at false-positive rate of 10%.

In this presentation we aimed to study the prediction models of PE and to discuss which model is more convenient for Turkish population considering the circumstances in our daily practice.

S22 - PRENATAL INTERVENTION IN CASE OF MITRAL VALVE DYSPLASIA SYNDROME

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Objective

To assess the intrauterine course and outcome of fetal cardiac intervention (FCI) in fetuses with mitral valve dysplasia syndrome (MVDS).

Methods

All fetuses with a prenatal diagnosis of MVDS were retrospectively collected in one tertiary centre for fetal medicine over a period of 10 years. Video recordings, pre and postnatal charts were reviewed for cardiac and extracardiac anomalies, intrauterine course and postnatal outcome.

Results

19 fetuses with MVDS were diagnosed in the study period. All of these had aortic stenosis with severe mitral regurgitation, marked left atrium dilatation and a highly obstructive or intact ventricular septum. In 5 cases FCI was not considered as the parents either opted for expectative management or for termination. In the remaining 14 fetuses, 21 FCI were performed: 14 balloon valvuloplasties, 2 atrioseptostomies and 5 fetal atrial stent insertions. Intrauterine fetal demise (IUFD) during intervention occurred in 4 fetuses, late IUFD several days after intervention in one fetus and 2 terminations of pregnancy were performed due to progressive hydrops. Among the 7 live births, 3 died in the neonatal period. The remaining 4 received single ventricle palliation, two following fetal aortic valvuloplasty and two after fetal atrial stent insertion. Aortic and tricuspid valve diameters were significantly different in survivors with single-ventricular-repair than in non-survivors.

Conclusion

MVDS has a high overall mortality even in cases undergoing intrauterine intervention. Parameters that accurately predict the intrauterine and postnatal outcome have yet to be defined.

S23 - FETAL ENDOTRACHEAL INTUBATION (FETI) - AN ALTERNATIVE FOR EX-UTERO INTRAPARTUM TREATMENT (EXIT)

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Fetal cervical teratomas are rare congenital tumors that consist of different types of tissue that can originate from all three germ cell layers. The vast majority are histologically benign, but the significant size they can achieve is life-threatening because of an upper airway obstruction with subsequent perinatal mortality and morbidity. They may also contribute to pulmonary insufficiency and chondromalacia due to mass size in utero and underdevelopment of the fetal lung. Also associated with polyhydramnios and premature labor, they represent a serious pregnancy complication. Currently, the common method for securing a suitable airway in neonates is the method of ex-utero intrapartum treatment (EXIT) which is associated with a significant risk for the maternal and neonatal morbidity.
For the first time, Cruz-Martinez et al. published a new method of fetal endoscopic tracheal intubation for the maintenance of the postnatal airway in large fetal cervical neck masses.
This procedure consists of a percutaneous fetal tracheoscopy under maternal epidural anesthesia using an exchange catheter covering the fetoscope that allows a conduit to introduce an intrauterine orotracheal cannula under ultrasound guidance. We report on our experience with three cases of FETI in patients with giant cervical teratomas.

S24 - INTERVENTION FOR PUV: BALLOONING OR SHUNTING?

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Objectives

The objective of our study was to determine the feasibility of vesicoamniotic shunting (VAS) in the first trimester with the Somatex® intrauterine shunt as well as rates of complications, shunt dislocations and neonatal outcome.

Methods

Retrospective cohort study of all VAS before 14 weeks at two tertiary fetal medicine centres from 2015-2018 using a Somatex® intrauterine shunt. All patients with a first trimester diagnosis of megacystis with a longitudinal bladder diameter > 15 mm were offered VAS, irrespective of fetal sex. All patients that opted for VAS after counseling by prentanal medicine specialists, neonatologists and pediatric nephrologists were included in the study. Charts were reviewed for complications, obstetric and neonatal outcomes.

Results

14 VAS were performed during the study period in ten male and four female fetuses at a median GA of 13.3 (12.4 to 13.9) weeks. There were four terminations of pregnancy (TOP) in the second trimester due to associated malformations and two IUFD. Overall there were 4 dislocations (28.6%); three intraabdominal shunt dislocations at 25-30 weeks and one early dislocation.
Eight neonates were born alive at a median GA of 35.5 weeks. There was one neonatal death due to pulmonary hypoplasia. Kidney function was normal at birth in the 7 neonates surviving the neonatal period. After exclusion of TOP perinatal survival was 70%, and 87.5% if only live-born children were considered.

Conclusions

VAS in the first trimester is feasible with the Somatex® Intrauterine shunt. Dislocation rates are lower than previously described with other shunts. Neonatal survival rates are high due to a reduction in pulmonary hypoplasia, but there is a considerable rate of complex additional malformations.

S25 - NON-INVASIVE VENTILATION OF THE NEONATE

Moretti C.

Nasal Intermittent Positive Pressure Ventilation (NIPPV) or Nasal Intermittent Mandatory Ventilation (NIMV) are non-invasive modes of ventilation generated by ventilators that provide NCPAP plus superimposed ventilator mandatory breaths and are identified as SNIPPV/SNIMV when the ventilator pressure waves are synchronized with the spontaneous efforts of the patient. These techniques are being increasingly used in preterm infants with respiratory failure and several trials seems to demonstrate that NIPPV and SNIPPV are more effective than NCPAP in reducing extubation failure (1-3) and also as primary mode of ventilation (4). Their effects include a higher mean airway pressure (MAP), a washout of the anatomical dead space in the upper airways and a stimulatory effect on the respiratory drive. With SNIPPV the benefits are more consistent due to the positive effects of synchronized mechanical breaths in reducing thoraco-abdominal asynchrony, inspiratory effort (5), breathing frequency and work of breathing (WOB) and at the same time in increasing tidal volume (Vt) and minute volume (Ve) (6), gas exchange (7) and respiratory drive (8).
Different modes of synchronization have been reported. SNIPPV was initially performed by a capsule (Graseby capsule) placed on the baby's abdomen which detects the increase of the pressure due to the contraction of the diaphragm, but this device has several disadvantages. Although it is a relatively simple device, accuracy is limited by position and fixation, movement is often misinterpreted as breathing and at higher spontaneous breath rates its response is less consistent. Neurally adjusted ventilatory assist (NAVA), which uses electrical activity of the diaphragm (Edi) to trigger the ventilator, has been developed more recently. However, it has the disadvantage of being invasive and costly, as a dedicated electrode-equipped catheter to detect Edi is required and to date there are few data on clinical outcomes.
To overcome all these disadvantages our team decided to create a ventilator expressly developed to perform flow-SNIPPV (Giulia®; GINEVRI srl, Albano Laziale, Rome, Italy). The flow-sensor, a simpler differential pressure transducer, is interposed between the nasal prongs and the Y piece (1, 2). Using this device we were able to demonstrate that flow-SNIPPV is more effective than conventional NCPAP in improving ventilation and in decreasing extubation failure in preterm infants who had been ventilated for respiratory distress syndrome (RDS) (6, 9). Later we used flow-SNIPPV as the primary mode of ventilation, after surfactant replacement, reducing the need for mechanical ventilation and favorably affecting short-term morbidities of treated premature infants (10). More recently we have also successfully applied flow-SNIPPV in the treatment of apnea of prematurity (AOP) (8). This technique has also been successfully used as rescue therapy for infants failing on NCPAP (11).
Moreover, the modern concept of "precision medicine" aims for the improvement of efficacy of flow-SNIPPV also with continual enhancements in comfort and another main goal to further improve this technique was the development of very light and comfortable nasal prongs that have similar characteristics to the HHFNC and with the flow-sensor placed far away from the infant's head, at the level of the Y-piece. Preliminary bench and clinical studies to test this new interface confirmed the efficacy of this new lighter and more comfortable device (12).

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S26 - FIRST TRIMESTER FETAL GROWTH IN IVF AND OVODONATION

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Objectives

Maternal features such as age, maternal diseases and BMI play a less important role in determining changes in fetal size and growth in the first trimester (i.e. Crown-Rump Length [CRL]). it is generally assumed that early fetal growth remains uniform during the first trimester but that babies conceived by ART have a generally smaller birth weight.
The objective of this study is to determine whether there are differences in CRL in fetuses conceived via homologous versus heterologous oocyte/embryo donation and also to determine whether the changes reported in fetal size and growth after Assisted Reproductive Techniques (ARTs) can be attributed to maternal characteristics such as age, immunological nature of the pregnancy (semi-allograft vs allograft) and/or other factors.

Methods

This is a retrospective cohort study of consecutive pregnancies obtained by IVF patients who underwent first trimester scan at a single tertiary referral center .
Pregnancies were dated according to the date of oocyte aspiration. CRL was always evaluated by standard methods, by a single operator during the first-trimester ultrasound screening (11th-13th week of gestation). For the purposes of the study, CRL and nuchal translucency were corrected for gestational age and converted in percentiles according to published reference ranges.
789 fetuses conceived with IVF were included in the analysis: 643 (81.5%) from homologous gametes (Group 1) and 143 (18.5%) from oocyte/embryo donation (Group 2). Abnormal karyotypes, fetal structural anomalies and monochorionic twin pregnancies were excluded.
Recorded data regarding maternal and ultrasound parameters (maternal and paternal age, maternal BMI, parity, ethnicity, late embryo transfer, oocyte age, CRL centile and nuchal translucency >95th centile) were compared between the two groups. Multivariate analysis was performed in order to assess the role of maternal factors and oocyte age in early fetal growth.

Results

In Group 1 CRL centiles were significantly smaller than in Group 2 ($p<2.2e-16$). Maternal age was significantly increased in Groups 2 ($p<2.02e-14$), while oocyte age was significantly lower ($p<2.2e-16$). No significant correlation was found at multiple linear mixed-effects models analysis between CRL centile and oocyte age ($p=0.206$).
there was no significant correlation between CRL percentile and oocyte age ($p=0.206$).
A significant inverse correlation was found at multiple linear regression analysis between CRL and maternal BMI ($p=0.0206$; $B= -0.655$, 95%Cl=-1.193, -0.117).

Conclusions

Our study shows that there is a significant difference between the CRL value of embryos derived from homologous gametes of subfertile couples and those obtained by oocytes/embryo donation from young donors.
In ART pregnancies the CRL median percentile is significantly lower if conceived by homologous oocytes compared with those conceived by oocyte/embryo donation.
The difference in CRL values does not depend on oocyte age, as was initially assumed in our hypothesis. A possible role of subfertile couple conditions on early fetal growth is supposable.

S27 - DILEMMA OF THYROID IN PREGNANCY IN TURKEY: HOW FAKE? HOW REAL?

Esinler D.

Thyroid hormones have unique effects on growth and maturation of thyroid-dependent tissues. They are critical for early fetal brain development, somatic growth and bone maturation.

Fetal thyroid is not functional until 18-20 weeks and maternal T4 is especially important in first half of pregnancy. To meet increased demands of pregnancy there are altered changes in thyroid physiology that are reflected in thyroid function tests.

Iodine requirements increase in pregnancy due to increased hormone production and increased renal clearance. Iodine deficiency is a global health problem. Severe iodine deficiency results in irreversible brain damage in fetus. WHO recommends 250 mcg iodine during pregnancy and lactation. For women in USA ATA recommends 150 mcg daily iodine supplementation to achieve this level. There is growing evidence on effects of mild iodine deficiency on fetal neurocognitive development. Median urinary iodine concentration (UIC) is used to determine iodine status of population. According to 2007 WHO report Turkey is iodine sufficient based on median UIC of school aged children. In 2017 Iodine Global Network data, pregnant women in Turkey are iodine deficient. Randomized controlled studies are needed before routine iodine supplemantation of pregnant women in our country.

Hypothyroidism can have adverse effects on pregnancy outcomes depending on degree of biochemical abnormalities. Overt hyperthyroidism is unusual in pregnancy (%0,3-0,5). It is associated with increased risk of preeclampsia, abrubtion, preterm delivery, cesarean delivery and neurocognitive abnormalities in child. Subclinical hypothyroidism is more common in pregnancy (% 2-2,5). Risk of pregnancy complications are lower. Association of subclinical hypothyroidism in pregnancy and neurocognitive abnormalities is controversial. It is also uncertain if levothyroxine treatment improves perinatal outcomes and neurocognitive development in child.

The universal screening of asymptomatic women for thyroid dysfunction in first trimester is controversial because of insufficient evidence on benefit of treatment.In prospective trials universal screening compared with targeted screening did not improve perinatal outcomes.

Overt hyperthyroidism is uncommon in pregnancy (%0,3-0,4). Graves disease and Hcg mediated hyperthyroism are most common etiologies. Pregnancy complicated by overt hyperthyroidism is associated with increased rates of spontaneous abortion, preeclampsia, stillbirth, preterm labor, low birthweight.

S28 - 3D/4D ULTRASOUND EVALUATION OF ISOLATED FETAL LIMB DEFECTS

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Introduction

Fetal abnormalities that affect isolated limb segments or bones are rare and can be detected only by a thorough ultrasound examination of all four limbs.
For the detection of limb malformations 3D/4D ultrasound offers the ability to assess the fetal limbs in several display modes: multiplanar mode, tomographic ultrasound imaging mode (TUI), surface mode and transparency mode. 4D ultrasound allows spatial visualization of the fetus in real-time. This enables the operator to observe not only the fetal surface but also the skeleton during fetal movements.

Material and Results

Within the past 20 years different limb defects were detected prenatally in 154 fetuses: amelia, phocomelia, ectromelia, peromelia, hemimelia/radial aplasia, apodia, sirenomelia, split hand/split foot, polydactyly, syndactyly, clinodactyly, camptodactyly/overlapping fingers, missing middle phalanx digit V, club foot and isolated joint contractures (AMC).
Comparing 2D and 3D ultrasound results in these 154 fetuses, 3D/4D ultrasound provided diagnostic advantage in 136 of these cases (= 88.3 %). This advantage is due to the fact that the volume with the stored limb segment can be manipulated in all directions which enable an optimal demonstration of the defect.

Summary

3D/4D ultrasound with its different display modes does not only enable a precise demonstration of isolated limb defects of the fetus but can also provide more convincing evidence of normal fetal limb structures than 2D sonograms.

S29 - STANDARDIZATION OF ULTRASOUND USE IN OBSTETRICS IN TURKEY

Avcı E.

Routine ultrasound examination is generally carried out in the 2nd trimester, even though routine scanning is proposed increasingly during the 1st trimester, especially in high-resource society.

The basic aim of an obstetric ultrasound scan is to assure accurate data which will ease the delivery of optimized antenatal care with the best feasible outcomes for mother and fetus. In the 1st trimester, it is crucial to corroborate viability, determine gestational age and the number of fetuses accurately and in the presence of a multiple gestation, define chorionicity and amnionicity. Thereby, standard first trimester ultrasound scan has to provide these data.

The ultrasound examination can also provide a possibility to discover gross fetal anomalies and, in health systems that suggest first-trimester aneuploidy screening, measure the nuchal translucency thickness (NT), towards the end of the first trimester

Three important targets while scanning twins at 10-14 weeks are: 1. Dating; in pregnancies conceived spontaneously, the larger of the two CRLs should be used to determine gestational age. 2. Labeling; Site (left/right, upper/lower), Cord insertion relative to the placental edges and 3. Chorionicity; Membrane thickness at the site of insertion of the amniotic membrane into the placenta (Lambda vs. T-sign)

Routine Mid-trimester Fetal Ultrasound Scan

The basic aim of an obstetric standard mid-trimester ultrasound scan is to supply accurate diagnostic data for the delivery of optimized antenatal care with the best possible outcomes for mother and fetus. The method is used to determine gestational age and fetal measurements for the timely detection of growth abnormalities later in pregnancy. Further aims are to catch congenital anomalies and multiple pregnancies. Notwithstanding many anomalies can be detected, it is accepted that some may be missed, even with sonographic equipment in the best of hands, or that they may develop later in pregnancy.

The two overview and twenty planes approach was proposed to provide minimum requirements for a basic fetal anatomical survey. A logical and time efficient examination of the whole fetus can be done by this method and standardisation strengthens the physcians' confidence. On the other hand, examining the fetus precisely is more important than the sequence in which it is evaluated. The role of standard mid trimester ultrasonographic examination is to differentiate between the range of normal and abnormal fetus.

Ventricular Septal Defect (VSD)

VSD is an opening in the ventricular septum, giving rise to a hemodynamic communication between the left and right ventricles. VSDs are common congenital heart diseases. Isolated VSDs account for 30% of children born with congenital heart defects and are associated with other cardiac anomalies approximately 30% of cases. Postnatal echocardiographic assessment reports the prevalence of VSD to be as high as 50 per 1,000 live births.

In general, VSDs are classified according to their anatomic pozitions on the septum. Four anatomic types of VSDs are found: inlet, outlet, perimembranous, and muscular. Perimembranous VSDs are the most common in neonatal series, whereas muscular VSDs are most common in prenatal series.

A large perimembranous VSD extending to the outlet septum and associated with malposition of great vessels (Fallot, DORV) is frequently referred to as a malalignment VSD. Malalignment VSD is actually not a VSD, it is a conotruncal malformation

Visualisation of the interventricular septum; The interventricular septum is examined during the routine visualization of the 4- and 5- chamber views. Nevertheless, a realiable appraisal is obtained by a perpendicular insonation of the septum.
Inlet VSD is displayed in the 4 chamber view. The communication is situated below the level of atrioventricular valves. It may be an isolated finding but part of an AV septal defect or other large defects related with ventricular or outflow tract abnormalities.
Muscular VSD can be displayed in the 4- or 5 chamber plane. Only large defects (>2mm) are seen on gray scale as most are very small and only showed with color Doppler. A usual localization is the apical region near the moderator band attachment. Muscular VSDs are best displayed with color Doppler
Perimembranous VSD can be displayed in the five chamber view and the defect is found just below the aortic valve annulus. They shoud be verified by the color Doppler
Relevant cardiac anomalies are frequent and are usually diagnosed before the diagnosis of the VSD. When a seemingly isolated large (>2mm) VSD is discerned in midgestation, careful solicitude should be given to the outflow tracts given a high association of VSD with conotruncal anomalies.
VSDs are frequently associated with miscellaneous cardiac abnormalities, as they are compulsory in some and rarely or frequently found in others. Furthermore, VSD can also occur with almost all syndromes. The presence of other signs can lead to the underlying syndrome. Typically it is present in Tr 21,18 & 13 & rarely in Di George Syndrome & others. Inlet and perimembranous VSDs are the types more commonly found in Tr21 & other syndromes. Muscular VSD are generally isolated accidental findings, however in the presence of additional extracardiac findings the risk for a syndrome increases.
The long-term outcome of fetuses with VSD depens on the size and location of the defect and the associated cardiac and extracardiac anomalies

S30 - FETAL INFECTION: A SCREENING DİLEMMA

Yapar Eyi E.G.

In pregnancy, infection, invasion and multiplying of microorganisms in the body is a common complication as the women may be more susceptible to the effects of infection due to the natural suppression of the humoral and especially T-mediated immune system. Epidemiological reports estimate that 7.7 million perinatal deaths occur annually worldwide, including 4.3 million that take place after 28 weeks of gestation, while the remaining in the first weeks of neonatal life. Though vaccination programmes have reduced the number of congenital rubella and hepatitis B and varicella, fetal infections are still well-described causes of stillbirths and major disabilities and may account for up to half of all perinatal deaths globally.

An infectious disease may be caused by the viruses, bacteria, parasites, chlamydia, fungi and rickettsiae. Certain infections may cause problems for the developing fetus and may endanger the health of the mother. The "TORCH" acrony typically included TOxoplasmosis, rubella, cytomegalovirus (CMV), herpes simplex viruses type 1 and 2 when it was first suggested in 1971. Traditionally these agents have been reported to have common characteristics, including causing an unrecognized illness in infected mother, vertical transmission to the fetus, developing several disruptive insult during early pregnancy leading to abnormal development of a fetal organ that had the potential for normal development in the affected fetus, and in some instances maternal therapy may not ameliorate fetal prognosis. However the letter "O" in "TO"changed to "others" because various infectious agents were detected to cause severe congenital fetal anomalies, with the most important being treponema pallidum. Hepatitis B virus, hepatitis C virus, human immunodeficiency virus and other viruses, including varicella, parvovirus B19 and the emerging agent Zika virus were also added to the "others". Many infections have been linked to preterm delivery and low birth weight and associated immediate morbidity of both the mother and the fetus. In most antenatal care programmes, women are offered routine screening for asymptomatic bacteriuria syphilis, hepatitis B and HIV, whereas those are not offered routine screening for bacterial vaginosis, CMV and hepatitis C virus and group B streptococcus: because there is insufficient evidence to support their clinical values and cost effectiveness. Though a nationally mandated screening and treatment program has been reported to decrease the rates and severity of CMV and toxoplasma related congenital infections in some countries such as France, Italy, Austria, "no congenital infection screening strategy for CMV and toxoplasmosis "have been carried out in the low risk antenatal care protocol in other countries as the risks of screening may outweigh the potential benefits. For those, screening in neonatal period may be necessary especially for CMV infection, resulting in a broad range of disabilities, including sensorineural hearing loss, visual impairment and motor and cognitive defects, in addition to hepatosplenomegaly, thrombocytopenia, jaundice, and even fetal aortic arch thrombosis. In order to solve the dilemma of screening for fetal infections, perinatal health reporting is a realistic goal. Morbidity registries for monitoring child health information as well as of data collected in neonatal intensive care units should be highlighted.

S31 - WHAT IS GENETIC COUNSELING AND BY WHOM?

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Genetic counseling can be described as the process of collecting the medical history and information pertinent to an individual's current or future genetic disease risk, informing the persons and their families regarding their risks, assisting and guiding them for appropriate genetic test selection and for possible risk reducing steps.

Risk of having a genetic disease or being a carrier can usually be calculated in many known monogenic conditions. Sometimes, a hereditary pattern may be difficult to recognize from a family history (pedigree) due to small family size, adoptions, environmental factors, incomplete penetrance and preventive strategies used in other family members (i.e. mastectomy in BRCA mutations, colonoscopy).

Referral to a genetic counselor or to a clinical geneticist is utilized by almost all clinical fields of medicine. The majority of referrals are from pediatrics, oncology, cardiology and obstetrics services. With continuously advancing technology in genetics and ever-increasing number of available tests, interpreting and counseling for the obtained genomic data per individual becomes more and more challenging. Accomplishing this in an even more limited time is another problem in pregnant cases and for their fetuses. In this respect, it is becoming extremely difficult to stay up to date and informed for an already busy clinician. Genetic counseling emerges as a separate expertise at this point; it is a strong need if not an obligation in many centers.

In obstetrics, genetic counseling comes with additional characteristics in terms of time limit and/or advantages of fetal imaging techniques. Other than routine antenatal screening for aneuploidies, familial hereditary conditions and certain findings on fetal ultrasonography may prompt a referral for a genetic consultation. Primary care physician, obstetrician, maternal – fetal medicine specialist, clinical geneticist and genetic counselor, all may be a part of the prenatal care team depending on the expected severity of the condition. Also, artificial intelligence-based programs are already taking their place in genetic counseling in this ever expanding genomic and genetic data flood.

S32 - PREMATURE PLACENTAL AGING AND PERINATAL OUTCOMES

Huertas E.

Placental aging is a physiological phenomenon. The placenta ages as the pregnancy progresses. However, there are placentas that show signs of aging earlier than others. What are the consequences of early placental aging?
To answer this question, we reviewed one of the first papers on placental maturation, wrote by Dr. Granumm in 1979 who proposed a practical classification of placental maturity based on its ultrasound appearance, with the aim of correlating it with pulmonary maturity. Today it is known that the degree of placental maturity does not correlate with pulmonary maturity but also that not all placentas at the end have to be mature because only around 18% of the placentas between 37 and 40 weeks are grade 3 (mature) . Most importantly, we realized that we can find mature placentas before 36 weeks and if it is between 28 and 32 weeks it is associated with adverse perinatal outcomes such as preterm birth, low birth weight, low Apgar score and neonatal death. For this reason, we propose a new classification of placental maturity in only two groups: immature and mature. If we find a mature placenta between 28 and 34 weeks, it should be evaluated by Doppler ultrasound every 2 weeks and culmination of pregnancy must be indicated between 37 and 38 weeks to avoid adverse outcomes. The delivery route will be according to obstetric indication. We should not ignore or minimize the finding of preterm placental aging but neither scare the patient or indicate caesarean section before term.

S33 - EUROPEAN CONSENSUS GUIDELINES ON THE MANAGEMENT OF RESPIRATORY DISTRESS SYNDROME – 2019 UPDATE

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As management of respiratory distress syndrome (RDS) advances, clinicians must continually revise their current practice. We report the fourth update of "European Guidelines for the Management of RDS" by a European panel of experienced neonatologists and an expert perinatal obstetrician based on available literature up to the end of 2018.

Since 2006, a panel of neonatologists from many European countries have met 3-yearly to review the most recent literature and develop consensus recommendations for optimal management of preterm babies.

The Guidelines have been translated into several languages including Chinese, and although primarily intended for use in Europe, they contain recommendations that potentially could be used anywhere provided clinicians have access to all the resources and experience needed to provide modern neonatal intensive care.

Respiratory distress syndrome (RDS) remains a significant problem for preterm babies.Although primarily a disorder of surfactant deficiency resulting in pulmonary insufficiency from soon after birth, the classical clinical description of RDS has changed as treatments have evolved over the years. Radiographic appearances of "ground glass with air bronchograms" are rarely seen today due to early surfactant therapy and early continuous positive airway pressure (CPAP).

Of the 8,156 babies from Europe for whom data were submitted to the Vermont Oxford Network during 2017, RDS was coded for about 80% of babies born at 28 weeks' gestation increasing to 90% at 24 weeks' gestation . Surfactant was given to 55% of very low birth weight (VLBW) infants, 27% in the delivery room and 29% beyond 2 h of age, suggesting that prophylactic surfactant is still being used. Chronic lung disease (or BPD) was coded for 18% of VLBW infants in Europe.

Although management has evolved over the years resulting in improved survival for the smallest infants, respiratory morbidity is still high.

The recommendations are classified according to the GRADE system to reflect the authors' views on the strength of evidence supporting each of the recommendations

The 2019 Guideline is divided into the following broad areas: Prenatal care,oxygen use,non-Invasive support,mechanical ventilation,surfactant replacement,general supportive Care.

S34 - THE CRUX OF PREMATURITY PREVENTION

Saling E.

Prematurity is still a major global health and financial problem, not only in the field of obstetrics and perinatal medicine, but also for the society as a whole. About 15 million babies are born preterm worldwide each year – that is more than 10 % of all newborns. Globally, prematurity is the leading cause of death in children under the age of 5 years. Every year, about 1 million children die due to complications of preterm births.

Recently, progress has been made in this area mainly by progesterone therapy for particular indications. However, according to the World Health Organization, in almost all countries with reliable data, preterm birth rates are increasing.

The first mechanism of disease responsible for preterm labor and delivery for which a causal link was well-established is ascending infection. Infections are responsible for at least up to 40 % of preterm births, particularly in the industrialized countries. Unfortunately, not enough attention is paid to infections as a cause of preterm births on a broad scale, which is a regrettable problem. Since about half of all preterm births happen in women without evident risk factors, and more than 50 % of the women concerned do not encounter any symptoms, systematic screening for vaginal infections and alteration in the vaginal microbiota in pregnancy is important from our point of view. This is done best, when all pregnant women themselves practice self-care by measuring their vaginal pH twice a week. We are aware, that more research needs to be done in this area. However, it would be inappropriate to neglect the already existing observational studies with their partially considerable positive results, only because they have not yet been proven by randomized trials. We also wonder why those who insist on randomized trials do not make efforts to perform them themselves.

Another crux of prematurity prevention concerns cases of recurrent late abortion and early prematurity. The most efficient measure from our point of view for preventing ascending infections, is to perform an Early Total Cervix Occlusion (ETCO). This is a minor surgical procedure, done at about 12 gestational weeks, which creates a total barrier within the cervical canal. Unfortunately, ETCO is sometimes confused with cerclage. This happened even in the current German guideline on premature births!

The principle difference between cerclage and ETCO is, that the cerclage only tightens the cervical canal, and so hardly can prevent ascending infections convincingly. In contrast, the ETCO completely closes the cervical canal, thus reliably preventing ascension of any microorganisms.

ETCO is now widespread in German speaking countries, and has good success rates. For unknown reasons, it is still rarely performed abroad, where for the same indication usually the cerclage is common.

ETCO also has been shown to be efficient in reducing prematurity rates in multiple pregnancies, even when there were no additional risk factors.

The general scientific situation on an international level is rather curious here, because there are no rational reasons for ignoring ETCO. It seems that medicine is sometimes more exposed to fashion trends than to objective science.

S35 - REDUCING NEONATAL MORTALITY: TURKISH EXPERIENCE

Koç E.

Neonatal mortality is an important public health issue showing the developmental status of a country. Major factors playing role in decrease of neonatal mortality are; perinatal and neonatal health policies, increased widespread of health services, usage of health services more effectively, increased number of antenatal visits and increased health attended birth.

The neonatal period is the most vulnerable time for a child. Among children under 5 year of age, .47% of deaths were newborns in 2017 (WHO). Globally, 2.5 million children died in the first month of life in 2017.

Turkey is an upper-middle-income country of 82.8 million people in 81 provinces, at different stages of socioeconomic development and it is like a bridge between Asia and Europe. Turkey has undergone rapid economic growth in the last decade, and although socioeconomic differences exist within the country it has the demographic benefit of a young and growing population. Infant mortality is about 9.1 per 1000 live births and neonatal mortality is 5.8 per 1000 live births (2017).

Basic programs implented for reducing maternal and newborn mortality in Turkey are;

1. Centralisation
2. Organisation
3. Education
4. Staffing
5. Equipment/drugs

For centralisation, 29 health regions were established in 2009. Perinatal centers including level III NICUs and the other disciplines were planned for every region. For neonatal transport, there are a total of 2735 stations in Turkey. Education of mothers on the basic issues related to babies were provided by the “Conscious Mother, Healthy Baby Programme”. Breastfeeding was encouraged by establishing ‘baby friendly hospitals’. Currently, all hospitals where deliveries are made have staff who attended Neonatal Resuscitaton Program’. The number of NICU beds has reached to almost 12 thousand, 8000 of them are level III NICU beds.

Turkish Neonatal Society also aims to increase the knowledge and experience of health professionals and to ensure that the health services offered to newborn babies in our country are of standard and high quality. The newborn mortality rate in Turkey could decrease further with attention to the major causes of infant death, which are largely preventable.

S36 - CFDNA AND OTHERS: WHICH MODEL FOR TURKEY?

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Prenatal screening for trisomy 21 (Down syndrome), trisomy 18, trisomy 13, and sex chromosome aneuploidies can be performed using next-generation sequencing of cell-free DNA (cfDNA) in the maternal circulation. Circulating cfDNA is derived from both the mother and the fetal-placenta unit.

The advantages of this test include simplicity of the screening process (blood sampling in the patient) and the high test quality when screening for trisomy 21, 18, and 13 (detection rate about 99%; false positive rate <0.1%). The detection rate for Turner syndrome and other gonosomal aneuploidies is about 96–100% for a false positive rate of 0.003–0.14%.For the sex chromosome trisomies 47,XXX; 47,XXY; and 47,XYY the DR and FPR were 93.0 and 0.14 percent, respectively.Use of cfDNA screening in twin pregnancies is controversial because of limited data on test performance. Many of the commercial test offerings cannot identify twin pregnancies, or can only identify dizygotic twins

cfDNA is still considered a screening test due to infrequent false-positive and false-negative results. An invasive procedure (eg, amniocentesis or chorionic villus sampling) and subsequent karyotyping is considered the gold standard diagnostic test .A wide range of cfDNA failure rates have been reported (0 to 10 percent or more, with a consensus estimate of approximately 2.0 percent)

The most common reasons for test failure include less than a specified absolute amount of total and/or fetal/placental DNA, fetal fraction below an acceptable level (eg, <4 percent), and insufficient numbers of fragments sequenced and/or aligned. Another reason for a test failure, depending on the laboratory method used, is long stretches of homozygosity (fragments in which identical gene sequences are discovered originating from the maternally and paternally derived chromosomes). Examples include uniparental disomy (inheritance of both chromosomes from one parent) or parental consanguinity. Even if all quality control parameters are met, some laboratories identify results as "borderline" and will not make a positive or negative screening call. In such instances, a "borderline" test should be considered a screen positive and not a test failure.

First trimester fetal evaluation is not just a screen for the common trisomies.Rather, it is just one portion of a fetal assessment for chromosomal abnormalities overall, fetal structural anomalies, and genetic as well as non-genetic syndromes.The performance of cfDNA in screening for certain types of aneuploidy is better than any other currently available test, it still has some significant limitations such as a limited scope, high costs, and a relatively high test failure rate. Therefore, the best result can be achieved if these screening tests are combined. For now, the best approach appears to be a contingent type of screening policy where combined screening is done as the first step. This is followed by the cfDNA analysis in those women with a borderline risk result based on the initial screen.

S37 - CHANGES IN THE TREND OF C-SECTIONS IN 20 YEARS?

Fındık F.M.

C-section is a surgical intervention to prevent or treat life threatening maternal or perinatal complications.

The origin of c-sections and when it was first applied is not exactly known. It is known to be in both eastern and western cultures. In ancient times, however, it is known that c-sections was to take the baby from a dead or dying mother for various reasons. Application to save the life of the mother goes back to 19th century.

Although cesarean rates vary between 0.4-40% among countries in the world, it has been observed that rates have increased gradually in the last 30 years.

Since 1985, WHO has predicted an ideal cesarean rate of 10-15%. In cases where c-section is not necessary, there is no evidence showing the benefits of cesarean to a mother or a child. As in with any surgeries, c-sections has short and long term risks, and it has ongoing health effects for the mother, child and future pregnancies after the delivery.

What Was The Situation In The World?

In 1900, the average c-section worldwide was 6.7%. The lowest rate was in Africa with 2.9% and in Asia with 4.4%. The highest rate was in Latin America with 22.8%. In 2014, the average c-section in the world increased to 19.1%. When the continents were examined, Africa had the lowest rate with 7.4% and Latin America had the highest rate with 42.2%.

While c-section rate was 22.7% in the USA in 2000, it went up to 32% in 2015. It is noteworthy that in the mid-1990s, with the increase in normal vaginal delivery after c-section rates, cesarean rates decreased slightly.

At the same period, the mean c-section was 19.1% in European countries according to WHO data. In 2001, Italy had the highest cesarean rate with 35.3%, followed by Malta with 23.5% and Spain with 22.4%. Turkey did not have relevant data during this period.

In the latest data for 2014, the average c-section in Europe was 26.8%. The highest rate was in Turkey with 50.8%. This is followed by Bulgaria, Hungary and Italy.

What Is The Situation In Turkey?

In Turkey cesarean rate is increased from 7% to 48% between 1993 and 2004. In 2016, this ratio was 53.1%.

According to a study conducted by Suleyman Demirel University previous c-sections, fetal distress and maternal desire were the main 3 reason for c-section. Meanwhile in Erzurum, the first three reasons were previous c-section, breech presentation and fetal distress.

According to a study conducted by our clinic between 1983-2002, most common indications were previous c-sections (25.7%), fetal distress (14.3%). During this period, the cesarean rate was 31.5%.

While our cesarean rate was 78.4% in 2018, the most frequent indication was previous c-sections with 63.2% and p. Previa (5.9%), preeklampsia and severe preeklampsia (5.3%).

Why not deliver all the babies by c-section.

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S38 - PHYSICIANS AS TARGETS: COPING WITH LITIGATION AND VIOLENCE

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This presentation identifies ethical challenges of targeting physicians with litigation and violence and proposes professionally responsible responses. This approach is based on professional ethics in obstetrics and gynecology, which was introduced into the history of medical ethics in the eighteenth century. Professional ethics in medicine has two key components, based on the ethical principles of beneficence and justice. First, every obstetrician-gynecologist has the professional responsibility to adhere to processes designed to ensure patient safety and quality of care. Second, every leader in obstetrics and gynecology has the professional responsibility to create an organizational culture of professionalism that provides oversight of processes of patient safety and quality of care. These two components support the introduction of an organizational culture committed to patient safety as the professionally responsible means to reduce the risk of professional liability. FIGO has recently addressed criminalization of professional liability. The ethical principle of justice precludes criminal proceedings or threats of criminal proceedings when there is no prima facie evidence that the criteria for a crime have been met. The ethical principle of justice also precludes issue of an arrest warrant, arrest itself, or confiscation of travel documents, when there is no prima facie evidence that the criteria for a crime have been met. On the basis of these two ethical considerations FIGO has made recommendations. Obstetrician-gynecologists should commit to patient safety and quality. On this basis, obstetrician-gynecologists should advocate for reform of criminal law: to prevent prosecutorial abuses; to mandate pretrial review; to prohibit arrest warrants, confiscation of documents, etc., in absence of evidence; and to support civil proceedings in response to groundless criminal and civil accusations. The response threats of violence and violence itself should be guided by the professional virtue of courage, which calls for obstetrician-gynecologists to stand their ground but not do so recklessly. To implement the professional virtue of courage this presentation offers recommendations about risk of violence against physicians who provide termination of pregnancy, threats of violence against physicians' families, and limits on placing physicians in conflict areas. The FIGO statement recommendations on professionally responsible management of threats of violence are reviewed.

S39 - CLINICAL IMPLICATIONS OF THE ETHICAL CONCEPT OF THE FETUS AS A PATIENT

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This presentation explains the ethical concept of the fetus as a patient and its clinical implications. This concept is an essential component of professional ethics in obstetrics and gynecology, which is based on the ethical concept of medicine as a profession. A human being becomes a patient when that individual is presented to a physician and there exist forms of clinical management that are reliably predicted to result in net clinical benefit for that individual. The capacity to consent is not part of this concept and is therefore not required in order for an individual to become a patient. The viable fetus is a patient when a pregnant woman presents to a physician or other healthcare professional. Viability is a function of both the developmental stage of the fetus and obstetric and neonatal clinical management, including neonatal intensive care. The previable fetus is a patient when the pregnant woman confers this moral status on her fetus(es). When evidence of fetal and neonatal benefit is clear, the obstetrician should recommend clinical management for which there is an evidence base of fetal or neonatal benefit. This is known as directive counseling. When the evidence is unclear, the medically reasonable alternatives should be presented to the pregnant woman and she should be supported in evaluating them and deciding on a course of clinical management. This is known as shared decision making. The roles of directive counseling and shared decision making in the informed consent process for cesarean delivery are explained. A general clinical implication follows: clinical judgment about cesarean delivery should not be binomial. The obstetrician should base clinical judgment and decision making with pregnant patients on the continuum of very strong indications for cesarean, very weak indications for cesarean delivery, and disputed indications for cesarean delivery.

S40 - PLANNED HOME BIRTH IN THE U.S. IS UNSAFE

Chervenak F.A., McCullough L.B., Grunebaum A., Brent R.L. Levene M.I., Arabin B.

Recently, the number of planned home births in the United States had been increasing. Currently, the rate has plateaued. In the U.S. planned home birth occurs a woman's home in the community. Births in birthing centers attached to a hospital do not count as planned home births. We present evidence from the largest, most reliable dataset of births in the U.S. These data show that there is an increased absolute and relative risk of perinatal mortality and serious morbidity from planned home birth when compared to planned hospital birth attended by a nurse-midwife. We assess this increased risk on the basis of the professional responsibility model of perinatal medicine. This model requires that ethical obligations to the pregnant, fetal, and neonatal patient be identified. When increased absolute and relative risk of childbirth can be reduced consistent with these ethical obligations, it becomes ethically obligatory to do so. In response to women who express an interest in planned home birth, obstetricians should implement this ethical obligation by explaining the increased absolute and relative risks of perinatal mortality and serious morbidity, explaining that these risks cannot be eliminated because the transportation time to the hospital cannot be eliminated, recommending against planned home birth, and recommending planned hospital birth. Obstetricians have the professional responsibility to improve the safety of planned hospital birth and avoid unnecessary procedures. Obstetricians also have the professional responsibility to create as homelike a patient experience in the hospital as practicable.

S41 - ANTIMICROBIAL STEWARDSHIP IN THE NICU

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Antimicrobials are the most commonly prescribed drugs in the Neonatal Intensive Care Unit (NICU) but are quite often used inappropriately with various short and long-term side-effects. Antimicrobial Stewardship (AMS) includes all the coordinated interventions designed to improve and measure the appropriate use of antimicrobials by promoting the selection of the optimal antimicrobial drug regimen, dose, duration of therapy, and route of administration. AMS aims to achieve optimal clinical outcomes related to antimicrobial use, minimize toxicity and other adverse events, reduce the costs of health care for infections, and limit the selection for antimicrobial resistant strains.

The various strategies for the AMS that have been used in NICUs are:

1. Persuasive (prescriber audit with intervention and feedback).
2. Restrictive (formulary restriction and preauthorization, guidelines, policies).
3. Structural (rapid diagnostic tests for inflammatory markers or identification of infectious diseases agents, discussion with infectious diseases physician).

Specific interventions may lead to more rational use of antimicrobials in NICUs such as the following:

1. Diagnosis of neonatal sepsis using biomarkers (CRP, procalcitonin) and optimising the blood volume collected for blood cultures. The probability of isolation of a pathogen increases as the blood volume increases (1-2 ml).
2. Choice of empirical antimicrobial treatment which should be based on the epidemiological and microbiological data of each NICU. At both local and national level continuous epidemiological surveillance of responsible pathogens and their antimicrobial resistant patterns are of paramount importance.
3. Reassessment of the initial antimicrobial treatment when culture results are available and de-escalation to narrow spectrum and less toxic antimicrobials is strongly recommended
4. Dosage and monitoring of antimicrobial levels: Due to the particularities of pharmacokinetics and toxicity of gentamicin, including reduced renal function and longer half-lives, it is necessary to administer higher doses at longer intervals to achieve similar levels with older children. Monitoring of therapeutic levels of gentamicin and vancomycin is necessary. In addition, evidence is emerging in both children and neonates that vancomycin can be infused continuously to obtain therapeutic levels while maintaining patient safety. Continuous infusion is associated with faster time to achieve target drug concentrations, lower daily dose and reduced therapy costs than intermittent dose. Loading dose appears also to be associated with better outcomes. With regards to carbapenems, extended infusion of meropenem for resistant GNs has the potential for improved efficacy and safety of eradicating infections and improving clinical outcomes due to optimal Pharmacokinetics/Pharmacodynamics (PK/PD). However, moving to continuous infusions may not yet be appropriate and generalized, as continuous infusions have been associated with lower CSF concentrations for the same total daily dose.
7. Development of AMS teams consisting of infectious diseases specialists, microbiologists, pharmacists, infection control nurses and representatives of the NICUs.
8. Continuous evaluate of antimicrobial stewardship interventions in order to ensure their uneventful and sustained application.

In conclusion, judicious use of antimicrobials in NICUs is vital for the protection of this vulnerable population. AMS in NICUs has unique challenges and various AMS strategies can be adopted with favourable outcomes.

S42 - MANAGEMENT OF THE IUGR FETUS

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The fetal growth depends on several factors, which can be divided into maternal, placental and fetal. It is of paramount importance to identify the growth restricted fetus. Following the introduction of ultrasound in clinical practice it became possible to accurately estimate the fetal weight, which after the gestational age, is the most important factor that influences the perinatal outcome. Although several definitions have been used, the most common definition of IUGR refers to a weight below the 10th centile for the gestational age. Approximately 8% of pregnancies are classified as IUGR based on fetal biometry which is compared to the expected curves of growth. Following the identification of a growth restricted fetus the challenge to the clinician is to look for any underlying cause for this complication and to follow-up the fetus appropriately. Moreover, to deliver the fetus early enough so as to minimize the consequences from the prematurity and not too late to avoid a permanent damage to the fetus from intrauterine hypoxemia. Following the diagnosis of fetal growth restriction a detailed anatomic fetal survey is essential as approximately 10% of growth restricted fetuses have congenital abnormalities.
Serial ultrasound scans initially at two-week intervals and as pregnancy advances even more frequently, are necessary in order to monitor fetal growth. Moreover fetal biophysical profile and amniotic fluid volume assessment are needed. Several studies have shown that there is a relationship between fetal hypoxemia and decreased fetal biophysical parameters. Umbilical artery Doppler is the most important arterial fetal Doppler for the discrimination and the management of the growth restricted fetus. Normal umbilical artery Doppler is reassuring; while absent or reverse end diastolic flow indicate close fetal assessment and delivery. Middle cerebral artery Doppler velocimetry can help us to detect the well-known “brain sparing” effect where there is redistribution of the fetal blood to the brain so as to prevent the fetal brain from hypoxia. Cardiotocography (CTG) is also used for the management of such cases as reduced variability or unprovoked decelerations are associated with increased perinatal mortality and morbidity. Abnormal pulsations in the ductus venosus indicate imminent delivery while umbilical vein pulsations are a poor prognostic sign related to chronic intra-uterine hypoxemia. The first parameters that become abnormal in a growth restricted fetus are the amniotic fluid and the umbilical artery Doppler, followed by the middle cerebral artery and finally by changes in the venous Doppler simultaneously with abnormal CTG tracings. According to Baschat et al when a fetus develops intrauterine growth restriction before the 33th week of gestation, gestational age was the most significant determinant for total survival. If the Doppler assessment of the umbilical artery reveals a reverse or absent end-diastolic flow before the 32nd week of gestation, delivery should be planned when the DV Doppler becomes abnormal, when pulsations are present in Umbilical Vein, or if the fetus reaches the 30-32th week. For term SGA fetuses presenting abnormal MCA Doppler assessment, delivery should be planned not later than the 37th week of gestation.

S43 - BENEFITS AND CRITICISMS OF CELL-FREE DNA ANALYSIS FOR ANEUPLOIDIES

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Cell-free fetal DNA analysis is currently one of the most convincing prenatal screening tests for Trisomy 21, Trisomy 18 and Trisomy 13. Its detection rate of sensibility for aneuploidies is 99%, 96% and 90% respectively.
This screening test is superior to the traditional combined test using Ultrasound Fetal Nuchal Translucency (NT) measurement and Biochemistry dosages of PAPP-A and free-Beta, with a detection rate of aneuploidies about 95%.
The commercial pressure of companies has influenced notably the worldwide diffusion of cell-free fetal DNA testing, especially in private medical centers and where performing invasive prenatal procedures such as Chorionic Villous Sampling is not available.
The advantage of this screening is the high sensibility rate but only for Trisomy 21 and sex aneuploidies.
The disadvantage is that the outcome and the follow-up are performed by the companies and that it is not well applied on women with obesity, in cases of vanishing twin, in the cases when the fetal fraction of DNA is lower than 4 mg, in cases of maternal chromosomal abnormalities and in the presence of placenta and fetal mosaicism. It is also important to underline that no result is provided following the test in 2-5%.
Another important disadvantage of this is that most women do this screening without pre- and post-councelling and they think that it is just another simple blood sampling; if the screening results are reassuring they feel altogether safe about the pregnancy and that the fetus is completely healthy.
Other controversial aspects are the screening in multiples, cases of maternal tumor as well as the economic burden of the cost. One other critical issue of cell-free DNA testing is that it is not as informative as the combined screening which offers further information regarding other fetal abnormalities in 40% of pregnancies, such as cardiac, scheletal, genetic and many others.
The un-controlled diffusion of the cell-free DNA test is beginning to raise many controversial issues in maternal-fetal and perinatal centres as well as in pregnant women.

S44 - CVS OR AMNIO IN THE ERA OF NIPT

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In the modern era of prenatal screening tests for aneuploidies the use of combined test - Ultrasound Fetal Nuchal Translucency measurement and Biochemistry and the more recent Non Invasive Prenatal Test (NIPT) or cell-free fetal DNA in maternal blood - has determined a decrease of invasive prenatal procedures such as Chorionic Villous Sampling (CVS) usually performed at 11 weeks and Amniocentesis at 16 weeks.
This is mostly due to the fact that pregnant women feel reassured by the result from the prenatal screening test and therefore opt for non-invasive testing. Other causes are the notable commercial pressure exerted by the companies who offer these tests as well as the fact that not all obstetricians are able to perform invasive diagnostic testing and, above all, CVS.
Currently, there is an inversion of the percentage of the pregnant women who prefer CVS rather than Amniocentesis because, as patients at a higher risk for aneuploidies after fetal screening, they opt for diagnosis as early as possible. Also, at present 1st trimester detailed anatomy ultrasound screening allows us to identify more than 40% of fetal malformations and therefore there are indications for studying the fetal karyotype by CVS using also microarray analysis.
This study analyzes the tendency of CVS increase and amniocentesis decline in Microcitemico Hospital, Cagliari, Italy in the last decade (Fig. 1). While in 2010 the percentage of Transabdominal (TA) CVS was 32,3% of all invasive prenatal diagnostic procedures and Amniocentesis was 67,7%, in 2018 the percentages were 61,3% for TA-CVS and 38,7% for Amniocentesis, respectively (Fig. 2). Our results show an increasing prevalence of TA-CVS for early diagnostic testing and underline the importance of continuous training of specialists skilled in CVS.

S45 - WHY DO WE STILL DO A TRAINING COURSE ON POSTPARTUM BLEEDING?

Goynumer G.

One of the targets of the Millennium Development Goal 5 is to reduce the maternal mortality ratio by three quarters between 1990 and 2015. Despite proven interventions that could prevent disability or death during pregnancy and childbirth, maternal mortality remains a major burden in world. In worldwide as a whole the maternal mortality ratio dropped by 44 per cent between 1990 and 2015 (from 385 to 290 maternal deaths per 100,000 live births). The Millennium Development Goal target, however, is still far off. If we would like to mention our country, the Millennium Development Goal 5 is achieved. Because the maternal mortality ratio dropped by 83.5 per cent between 1990 and 2015.

Post-partum hemorrhage (PPH) affects approximately 2% of all women who give birth and is associated with nearly one quarter of all maternal deaths globally. PPH is the leading cause of maternal mortality in most low-income countries. While PPH mortality is dramatically lower in developed countries, maternal hemorrhage causes significant morbidity including shock, adult respiratory distress syndrome, coagulopathy, pituitary necrosis, need for blood transfusions, operative management, and, in extreme cases, hysterectomy and loss of fertility.

Ninety-three percent of PPH-related deaths are reportedly avoidable through improved teamwork, communication, and proper use of sufficient medical and surgical treatments. Different obstacles to the delivery of high quality PPH-care were identified by both patients and professionals. These obstacles are lack of clarity of the guideline, lack of knowledges, failing team-communication and lack of information given by the professionals to the patients. Improving PPH recognition and response times along with improved team communication may significantly improve patient outcomes and decrease maternal mortality. Through simulation, health care teams can practice essential communication and technical skills.

Skill degradation is a phenomenon of skill loss that affects learners of all skill levels and age. Risk factors for degradation include increased latency of acquisition between a new skill and implementation into practice and frequency of implementation

We still do a training course on postpartum bleeding due to improving fight against PPH and skill degradation. By training course on PPH, most PPH-associated deaths could be avoided.

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S46 - PERINATAL ULTRASONOGRAPHY AND CONGENITAL ANOMALIES: OUTCOME MEASURES FOR TURKEY?

Erenel H.

Fetal and infant health outcomes are important measures of the overall health of a population and of the quality of health care providers. Congenital anomalies are very commonly diagnosed through antenatal screening programmes. For some anomalies, antenatal diagnosis leads to better preparation of families and health services for an affected baby and can improve the care provided. For other anomalies, antenatal diagnosis is commonly followed by the option of termination of pregnancy for fetal anomaly. Fetal structural anomalies are seen approximately in 3–5% of all pregnancies. In a retrospective study, congenital anomaly was found in 57 of 12,352 (0.46%) cases who underwent fetal anomaly screening during NT measurement at 11–14 weeks of gestation. Most common anomaly was anencephaly (14 cases) followed by cystic hygroma (7 cases), spina bifida (6 cases) and omphalocele (5 cases) (1). In another study, 1290 low risk pregnant women were examined during 11- to 14-week routine scan with either transabdominal ultrasound or transvaginal ultrasound. Congenital anomaly was found in 24 of 1290 (1.86%) cases. Most common anomaly was anencephaly (14 cases) followed by spina bifida (2 cases) (2). Thanks to technological developments in the last ten years, cardiac anomalies can be detected much earlier than before. In a tertiary care center and perinatology department, 692 first trimester examinations were made in low risk pregnant women at at 12-14 weeks of gestation. Cardiac pathology was observed 6 (2 cases of AVSD, aort hypoplasia, left ventrcle hypoplasia, transposition of great arteries, Tetralogy of Fallot with absent pulmonary valve syndrome) of 692 cases (0.8%) (3). In another study among 17259 fetuses, congenital anomaly was observed in 203 fetuses (1.18%). The most common anomaly was meningocele, followed by other central nervous system malformations like anencephaly and hydrocephaly (4). In another study, congenital anomalies were screened retrospectively between 2009 and 2012 in a tertiary care center in The Southeastern Anatolia Region. There were 485 cases with congenital anomaly among 8286 deliveries and terminations. Incidence of congenital anomaly was 5.85% (5). In terms of single system anomaly, the most common anomaly was CNS anomalies and the most common sub-type was anencephaly. The congenital anomaly incidence both in the world and Turkey may vary depending on the races, geographical regions, socioeconomic level, environmental factors, and dietary habits. Our national data showed that the central nervous system anomalies are the common group however cardiac anomalies are the most common anomaly type worldwide. They are also the most overlooked anomaly group and it may be related with the difficulty of antenatal detection, heavy obstetric tempo in the peripheric regions and low experience in the cardiac examination. Ministry of health and societies should focus on improvement in the antenatal diagnosis of cardiac anomalies.

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S47 - WHY AND HOW TO INTEGRATE FAMILIES IN NEONATAL CARE?

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Medical risk factors for neurodevelopmental delays in surviving high-risk infants have been identified, but there is increasing evidence of the impact of sensory inputs on brain development, such as pain and stress, separation and proximity, bonding and attachment, family's wellbeing and interaction with the child.
Family centered neonatal care (FCC) is a philosophy of partnership between staff and families. Unrestricted parental access to the preterm or sick newborn, involvement of parents in infant care and decisions, and open communication with parents are its basic tenets. Around the world, neonatal intensive care units (NICU) have had different attitudes and facilities towards FCC principles. FCC has become an integral part of care in most NICUs in developed countries, but not practiced worldwide.
The presentation will demonstrate the current scientific evidence supporting FCC regarding short and long term child and family outcomes.
European Standards of Care for Newborn Health, coordinated by the parental organisation European Foundation for the Care of Newborn Infants (EFCNI), published in Dec 2018, cover 11 key topics of neonatal care, and emphasise infant and family needs in all chapters, especially in NICU design and Infant- & family-centred developmental care.
The standards advocate 24-hour access for parents to the NICU and adjusting the clinical setting to infant and family needs; recommend provision of environment that minimises exposure to stressful stimuli. By individualised support, parents should be empowered to participate in daily care procedures in the NICU starting from skin to skin (Kangaroo) care and diaper changes. This can reduce stress, increase care-giving competency, and strengthen parent-child bonding. Parents are teached to recognise their baby's behavioral and discomfort signals and encouraged to provide non-analgesic pain relief during medical procedures.
FCC does not always meet the full requirements of the child and modern family. The next level is family integrated care (FIC) that involves providing parents with sufficient education and tools, so that they are able to become confident primary carers of their infants under the team's supervision. Availability of psychosocial support to parents and peer support from trained veteran parents is important. For implementing FIC, the basic principles of FCC should already be in place within a neonatal unit, and resources available for further education, supervision, and staffing.
Integration of parents in neonatal care means mutual learning and teaching between them and the staff. All healthcare professionals need sufficient education and continuous supervision to provide FCC/FIC. The lecture will discuss potential facilitators and barriers and provide some practical recommendations on how to start integration of parents in neonatal care.

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S48 - THE MYSTERIOUS TRIAD OF DIABETES, OBESITY, AND PREGNANCY

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The global obesity epidemic has resulted in heavier women in the reproductive age. More than 30% of women are above the ideal weight at the onset of their pregnancy. Similarly, there are more obese women suffering from type I or type II Diabetes Mellitus (DM). The risk of Gestational Diabetes Mellitus (GDM) is strongly linked to increasing maternal Body Mass Index (BMI). This statement has been reiterated in all publications regardless of its location, study design and analytical method for the past 25 years. The best representative study of all is a meta-analysis that reviewed 20 studies published over a period of 15 years and reported the unadjusted Odds Ratio of developing GDM was 2.14 in overweight women, while that for obese, and severely obese women were 3.56 and 8.56, respectively, when compared with normal weight pregnant women. In the absence of DM, obesity alone is also considered an obstetric risk factor. There is no doubt that either obesity or GDM has adverse pregnancy outcome, but it is worse when both conditions coexist.

Recent studies have indicated that DM and obesity may exert their effects independently. Moreover, the pathophysiological understanding and management approach is rather more complex. It is not just insulin resistance, we have seen leptin resistance, immunological factors and genetic and epigenetic components play an important role in the confounding adverse maternal and perinatal outcomes in patients hosting the mysterious triad of obesity, diabetes and pregnancy. In terms of management, while obese women have been tried on low Glycemic Index diets achieved greater fat loss and better capacity to prevent weight re-gain after a large weight loss outside pregnancy, its benefit in pregnancy is still awaited with doubtful safety. More details will be clarified in my presentation.

S49 - DIAGNOSIS AND MANAGEMENT OF LATE-ONSET FETAL GROWTH RESTRICTION

Herraiz I.

Fetal growth restriction (FGR) refers to an entity in which a fetus is not able to fully reach its biological growth potential. Excluding cases with congenital anomalies, it usually is a consequence of a mismatch between fetal nutritional needs and placental supply. Late-onset FGR usually refers to those cases identified ≥ 32 weeks. These fetuses are usually characterized by mild and stable hemodynamic alterations that allows, with close vigilance, prolong the pregnancy until term. Late-onset FGR is associated to a higher rate of perinatal morbidity and mortality as well as cardiovascular, neurological and metabolic complications on a long-term period. Currently, there is no full consensus on its diagnosis, but most experts agree that it is important to discern between the late-onset FGR and the constitutionally small for gestational age fetus with an estimated fetal weight (EFW) < 10th centile but healthy otherwise. For this purpose, the use of customized centiles of EFW has been defended, while others argue that universal growth charts should be used. Additionally, we have to deal with a margin of error of 15% for EFW, which leads us to expand our spectrum of FGR suspicion beyond the 10th centile. Finally, it is increasingly accepted that the measurement of the cerebroplacental ratio (CPR), defined as the umbilical artery / middle cerebral artery index, is needed to identify a substantial proportion of late-onset FGR.

Regarding the management, nowadays there are no intrauterine therapeutic options for FGR, being delivery the only option available, and the "when and how" the most controverted points. However, since the risk of stillbirth increases beyond 37 weeks, there is wide consensus that delivery should be attempted through labor induction on the early term period (37-38 weeks). The main challenge for the induction of labor in FGR is that the tolerance of fetuses to uterine contractions is usually poorer compared to normally grown fetuses, especially in those with blood flow redistribution. There is scarce evidence regarding which is the best approach for cervical ripening on FGR. Recently, our group has found that the Foley balloon could be a more suitable method for FGR cases due to its lower association to uterine tachysystole when compared to prostaglandins. Achieving vaginal delivery is not a goal by itself, it has also been associated to better maternal recovery, lower maternal morbidity and earlier and longer lasting maternal-neonatal bonding. Women with a vaginal delivery also have a better chance of stablishing an early and effective breastfeeding that, according to the World Health Organization, entails a significant reduction of neonatal mortality when compared to its instauration 24 hours after delivery. This is of special concern in cases that will benefit most from an early onset of breastfeeding (such as FGR) and those interventions that will favor it should always be considered by clinicians. Broadly, all interventions focused on improving the nourishment of neonates will probably have a short, medium and long-term impact on the health and well-being of the newborn.

S50 - USEFULNESS OF SFLT-1/PLGF FOR EARLY DETECTION OF PREECLAMPSIA AND FETAL GROWTH RESTRICTION

Herraiz I.

Preeclampsia (PE) and fetal growth restriction (FGR) are obstetric complications that are closely related with placental dysfunction and are associated with increased maternal and perinatal morbidity and mortality, particularly in their early onset forms. These conditions often coexist, increasing adverse outcomes. The rapid identification and correct assignment of these women in centers with adequate resources where perinatal care can be optimized are essential to reduce complications. Most maternal deaths in pregnancies with PE could be avoidable with a tempestive diagnosis and standard care. Nevertheless, diagnosis of PE is still based on nonspecific signs and symptoms, and identification of FGR by symphysis-fundal height or ultrasound is also suboptimal, leading to delayed diagnosis. The implementation of angiogenic-related biomarkers based on the identification of placental dysfunction such as the soluble fms-like tyrosine kinase 1 (sFlt-1)/ placental growth factor (PlGF) ratio enhances the detection of early PE and FGR. A sFlt-1/PlGF ratio ≤ 38 has demonstrated to rule-out PE in women with suspicion for about 4 weeks with 95% negative predictive value. However, there is more limited evidence regarding the management of women with abnormal results.

Based on this knowledge, we have proposed a new strategy for the clinical use of the sFlt-1/PlGF ratio in which pregnant women at risk for PE/FGR are selected for intensive monitoring starting at 24-28 weeks, including the measurement of the sFlt-1/PlGF ratio in maternal serum. This simple test is useful to predict which cases will develop PE/FGR requiring delivery before 32 weeks. This approach allows a better stratification of the risk of early-onset PE/FGR in selected women. Therefore, it could perfectly be a complementary strategy to the first trimester screening for PE, delineating the follow-up of those with a positive screening in two possible ways: those with values > 38 undergo intensified fetal and maternal care while those with sFlt-1/PlGF ratio ≤ 38 can be reassured for the next 4-6 weeks avoiding unnecessary costs and visits. Moreover, recent evidence from randomised controlled trial found that the adoption of angiogenic-related biomarkers for clinical use has the potential to reduce the incidence of maternal adverse outcomes.

We have also proposed the use of the sFlt-1/PlGF ratio for assessing the prognosis of already-diagnosed PE/FGR cases, based on the observation that the sFlt-1/PlGF value is inversely proportional to the time until delivery is needed. A sFlt1/PlGF value > 655 is associated to a short median time-to-delivery interval of 3 days, due to both maternal and fetal complications that require immediate delivery. In early-onset FGR, the sFlt-1/PlGF increases progressively as delivery approaches, this increase being more marked when PE is also present. This increment is mainly due to the increase in sFlt-1, which is the angiogenic-related factor that better reflects the progression of maternal disease.

In summary, the sFlt-1/PlGF ratio has been shown to have a strong predictive and diagnostic value for early-onset PE and FGR. Moreover, its implementation saves costs and improves maternal prognosis. Therefore, in the next years it hopefully become incorporated into clinical guides.

S51 - THERAPIES FOR THE PREVENTION AND TREATMENT OF PREECLAMPSIA

Herraiz I.

To date, the only available treatment for preeclampsia (PE) is delivery, which may be against fetal interests, especially when it occurs prematurely. The development of therapies for the prevention and treatment of PE that safely prolongs gestation are a major challenge in obstetrics. The improvement in the understanding of the pathogenic mechanisms of PE through the role of angiogenesis-related factors offers hope for the possibility of developing new beneficial treatments aimed at shifting the angiogenic balance in favour of pro-angiogenesis to correct the endothelial dysfunction. Besides, the serial measurement of the soluble fms-like tyrosine kinase 1 (sFlt-1)/ placental growth factor (PlGF) ratio helps us to monitor the effectiveness of the treatments.

There is currently strong evidence to state that the prophylactic low dose aspirin prior to 16 weeks' gestation in women at high risk for developing preeclampsia is effective in reducing – or delaying – the incidence of preterm PE by approximately 60-70%. The mechanism by which aspirin exerts this effect has not been fully elucidated, but there are already data indicating that aspirin inhibits sFlt-1 production in trophoblast cells facilitating the placental vascular development and the invasive capacity of the trophoblast.

Another drug that raises high expectations for preventing and treating PE is pravastatine. This hydrophilic statin with reduced transplacental passage has not only lipid-lowering properties but also pleiotropic effects that enhance endothelial function and prevents thrombosis. Preliminary studies in humans reveals that pravastatin is unlikely to be teratogen and restores the angiogenic imbalance in pregnant women with prothrombotic status or poor obstetric history. Even in patients with established early-onset PE, a striking improvement has been described after pravastatin administration. These encouraging results should be taken with caution since they do not come from large randomized trials.

Eculizumab, a humanized monoclonal antibody that inhibits terminal complement activation, has also been proposed as a therapeutic option. Some forms of PE, especially HELLP syndrome, may act as complement-amplifying conditions, and therefore be a suitable target for this agent. Preliminary reports support the usefulness of eculizumab during pregnancy in the setting of atypical haemolytic uremic syndrome. This is a much rarer condition than PE, but they share pathogenic and clinical characteristics. It remains to be established if there is any subgroup within the spectrum of PE, especially cases involving thrombotic microangiopathy, which may be likely to benefit from the use of eculizumab

Other treatments targeting the sFlt1/PlGF pathway may be of benefit in PE and are under investigation. Such strategies include the administration of recombinant proteins (VEGF, PlGF, peptides), neutralizing antibody against sFlt-1, blocking sFlt-1 production with short interfering RNAs and the removal of sFlt-1 through dextran sulfate apheresis. The main difficulty is to find a balanced dosage that allows to keep circulating levels of sFlt-1 safe, since its excessive elimination can also lead to undesirable effects such as an excessive hypotensive effect.

In conclusion, ongoing research on potential novel treatments for PE targeting etiopathogenic pathways are underway to improve the prognosis of a disease that so far does not have an effective treatment.

S52 - BLOODY BUSINESS IN OB: HOW ULTRASOUND CAN HELP?

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Background

Placenta accreta spectrum is the chief cause of postpartum hemorrhage resulting in maternal and neonatal morbidity/mortality. Ultrasound is critical for antepartum diagnosis. Peripartum hysterectomy has been the standard therapy but conservative management is increasingly being used and preoperative diagnosis is critical to plan the management. The etiology of accreta is due to a deficiency of maternal decidua resulting in placental invasion into the uterine myometrium.

Methods

We performed systematic analysis of selected databased published investigations and reviews. PubMed search was performed using the terms: placenta accreta, diagnosis, management.

Results

Ultrasound is a reliable tool for diagnosing invasive placentation. Several ultrasound features have been documented to be associated with a higher risk of placenta accreta, including the presence of placental lacunae (irregular vascular spaces resulting in a "Swiss cheese" appearance), retroplacental myometrial thickness less than 1 mm, loss of the normal hypoechoic retroplacental zone, and anomalies of the bladder-myometrium interface. Doppler ultrasound and most recently 3D power Doppler have the ability to differentiate between the degrees of placental invasion. Irregular intraplacental vascularization with tortuous confluent vessels affecting the entire placental width and hypervascularity of the entire serosa-bladder wall interface are important markers in differentiating placenta accreta spectrum in a prospective evaluation of at risk patients.

Conclusion

Placenta accreta spectrum is the chief cause of postpartum hemorrhage and are a significant cause of both maternal and neonatal morbidity and occasionally mortality. The prenatal diagnosis of placenta accreta is crucial and is associated with a significant reduction in postpartum complications.

S53 - MORTALITY STATISTICS: A GLOBAL APPROACH

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Internationally, there are different definitions to define stillbirth, maternal mortality, perinatal mortality. These differences relate to the gestational age, fetal weight, malformation, termination of pregnancy, cause of death. These differences may have an influence at the precise rates of stillbirth, maternal mortality and perinatal mortality and are important for the comparisons of international statistics. For global and local prevention strategies of fetal, perinatal and maternal mortality we need international consens about death registries and standardized protocols for death evaluation.

S54 - ANALGESIA IN NEONATES

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Effective analgesia in neonates is relevant not only because of ethics or empathy, but also since it is a crucial and valid part of contemporary nursing and medical practice. However and resulting in the need for a balanced approach, there is also emerging evidence on the extent of exposure to analgesics and poorer neurodevelopmental outcome in neonates. Consequently, the increased exposure to analgesics over time and the extensive variability observed in drug prescription practice is concerning given the limited evidence of benefit and the potential harm.

Implementation strategies to structure rational use of analgesics are effective to reduce exposure to narcotics, but result in increased paracetamol exposure. We therefore summarized the evidence on paracetamol use in procedural pain management, in minor to moderate as well as major pain syndromes in neonates. While there are sufficient data on short-term safety, there are still concerns on long-term side-effects. These concerns relate to neuro-behavioral outcome, atopy or fertility, and are at present mainly driven by epidemiological perinatal observations, together with postulated mechanisms.

Analgesic dosing regimens should take into account the severity and type of pain, the therapeutic window of the drug, but also the age or developmental state of the child. Translation of these concepts to safe and effective pharmacological management of pain in neonates necessitates thorough understanding of the principles of clinical pharmacology of analgesics in children. Growth, weight or size and maturation or age evolve in children and profoundly affect the pharmacokinetics (concentration-time profile, absorption, distribution, metabolism and excretion) and pharmacodynamics (concentration-effect profile, objective assessment) of drugs, and this is also the case for analgesics. This will result in extensive variability in dosing and effects, and this variability is most prominent in infancy. In addition to maturational changes, there are also non-maturational aspects (preterm neonates and critical illness, obesity, pharmacogenetics) that should be considered to further improve dosing in every individual newborn. This will be illustrated based on some recent observations on paracetamol and fentanyl pharmacokinetics.

We conclude that future clinical research objectives should still focus on the need to develop better assessment tools to quantify pain, and on the need for high quality data on long-term outcome of therapeutic interventions - also for paracetamol. Exploration of the development of the nociceptive system in newborns is necessary to enable optimal pain assessment, and most importantly to treat and prevent pain adequately in neonates.

S55 - CLINICAL PHARMACOLOGY OF ANTI-EPILEPTICS IN NEONATES

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Extensive variability in dosing and effects are the core characteristics of clinical pharmacology in neonates. The impact of drugs to improve outcome, while rational drug use in neonates remains underexplored. Clinical pharmacology aims to estimate the effects of such interventions, using pharmacokinetics (PK) and pharmacodynamics (PD) to generate predictions, including a grade of certainty and confidence intervals. PK (absorption, distribution and elimination, through either metabolism or renal elimination) estimates the concentration-time relationship. PD aims to estimate (side)-effects of a specific medicine (concentration-effect relationship). Very specific to newborns are the fast maturational changes in neonatal life with weight and age as main drivers of this maturation, resulting in extensive variability between and within-individual variability in PK and subsequent PD. Non-maturational changes further add to the variability. This is also the case for anti-epileptics, as will be illustrated by examples on PK or PD aspects related to phenobarbital, midazolam, lidocaine or levetiracetam.

Drug utilization research informs us on trends, on between unit variability and on the impact of guideline implementation, and this is also the case for anti-epileptic drugs. Ahmad et al. recently reported that neonates with seizures are still overwhelmingly exposed to phenobarbital with a very minor decease over the time interval (2005-2014, 99 to 96 %), a decrease in phenytoin use (15 to 11 %), and a very relevant increase in levetiracetam (1.4 to 14 %) with carbamazepine, lidocaine or topiramate as rarely administered AEDs in neonates (all <1 %). Better insights in the variety of mechanisms (asphyxia, infarction, channelopathies, metabolic syndromes) involved in the 'seizure phenotype' should enable us to shift from a 'one drug fits all' approach to individualized pharmacotherapy (better mechanism driven drug selection)

Finally, neonates can also be **exposed to anti-epileptic drugs by maternal intake**, either before (fetal), or after delivery (breastfeeding). The impact of breastfeeding on neurocognitive outcome following AED exposure during pregnancy and lactation has been documented by the Neurodevelopmental Effects of antiepileptic drugs (NEAD) group. At 6 years, children of mothers on AEDs during pregnancy had a higher (11.5 instead of 4.8 %) risk of impaired fine motor skills compared with controls and a lower and dose dependent IQ (-6 to -9 IQ point) following fetal valproate exposure when compared to other AEDs. Building on these background characteristics, subsequent breastfeeding in infants of women using AEDs was associated with improved neurodevelopment outcome compared with those with either no breastfeeding or breastfeeding for less than 6 months.

S56 - NEONATAL PAIN: BELIEFS, SKEPTICISM, AND SCIENTIFIC KNOWLEDGE

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During the last decades, a considerable improvement has been made in understanding the pathophysiology of neonatal pain and the long-term consequences of untreated pain in this age group, overcoming, thus, myths and beliefs of the past that have greatly influenced everyday clinical practice for years. Nevertheless, evidence show that, still, there is a large variation in the management of neonatal pain across centers and countries. Fear of acute adverse effects and poor neurodevelopment in the long-term following the administration of analgesics-sedatives, difficulties in pain assessment, relative paucity of relevant pharmacological studies, and personal preferences are important contributors to the existing differences among neonatologist, worldwide. On the other hand, clinical data regarding neurological outcomes after exposure to drugs such as opioids are conflicting, so that the question of whether the specific drugs may promote the damage of preterm brain largely remains unanswered. Inadequate pain assessment in neonates most probably reflects difficulties and reliability of the existing scales in assessing pain and its types (acute procedural, postoperative and chronic pain) as well as “culture on neonatal pain”. To eliminate drug exposure and significant side effects, several non-pharmacological modalities –environmental (measures to minimize bright light, loud noises or frequent handling) and behavioural (skin-to-skin care, sweet solutions)- are increasingly being used so that to reduce total amount of noxious stimuli. Overall, prevention and minimization of pain must be a high-priority goal during neonatal care, as early events like neonatal pain and stress may lead to epigenetic alternations affecting the infants’ developmental trajectory. Given, however, the aforementioned concerns, a tiered approach to sedation/analgesia seems most appropriate. Drugs should be used wisely when needed, while neonatal units should promote continuous education and protocol development on pain assessment and management.

S57 - CARDIOVASCULAR SUPPORT IN NEONATAL SEPSIS

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Neonatal sepsis still remains a severe medical condition associated with high morbidity and mortality, especially when associated with cardiovascular dysfunction and impaired tissue perfusion (shock). Despite this, the hemodynamic pattern of response in septic neonates has not been adequatelly investigated. Based on previous experimental data, neonates with severe sepsis were traditionally considered to develop "cold shock", a hypodynamic state characterized by increased systemic vascular resistanse (SVR), decreased cardiac output, tachycardia with or without arterial hypotention, cold extremities, and poor peripheral perfusion. More recent studies, however, indicate that similarly to older children, neonates may also develop "warm shock" (hyperdynamic circulation with increased or normal cardiac output and decreased SVR), bounding pulses, warm extremities and hypotension. Warm shock is postulated to result from the release of various vasodilating substances, whereas cold shock represents vasoconstriction to compensate impeding circulatory failure. Differences in hemodynamic manifestations are important for a more rational use of the various inotropic-vasoactive drugs in septic neonates. Functional echocardiography and hemodynamic monitoring may help in the evaluation of the infants hemodynamic status. Cardiovascular support of septic neonates along with the rest supportive care (antibiotics, respiratory support, etc) includes:

1. Administration of fluids: Early, aggressive volume resuscitation has been documented to reverse circulatory dysfunction and improve survival in pediatric-neonatal septic shock. In term neonates, administration of fluid boluses (saline or colloids) up to 60 ml/kg in the first hour of resuscitation has been proposed. Volume expansion (saline) should be less aggressive in preterm infants (risk of cerebral hemorrhage) and in cold versus warm shock (myocardial dysfunction).
2. Cardiovascular drugs: The choice of the appropriate drug should be determined by the infant's hemodynamic status. In warm shock (reduced SVR), inotropes/vasoconstrictors should be preferred and dopamine is the initial drug of choice. In the absence of a positive response, adrenaline or norepinephrine may be used. In infants with findings consistent with cold shock, the use of agents with predominent inotropic and vasodilating effect such as dobutamine, is preferable. Milrinone (a phosphodiesterase III inhibitor with vasodilatory activity in the pulmonary and systemic circulation) may be administered in right (eg, pulmonary hypertension) or left heart dysfunction and, in severe catecholamine-resistant shock. The experience from the use of other vasoconstrictors (arginine vasopressin and its synthetic analogue terlipresin) in neonates is limited. Given that the hemodynamic status in septic shock is a dynamic and constantly changing process, the various cardiovascular drugs used should be continuously titrated, depending on response and recovery of adequate organ perfusion.
3. Steroids: Although there are limited data on their use in septic neonates, steroids may be considered in catecholamine-resistant shock.

Overall, management of cardiovascular derangements in septic neonates should be individualized based on the hemodynamic status of each patient allowing, thus, the choice of the most appropriate cardiovascular drugs.

S58 - PREDICTION OF ADVERSE OUTCOME OF EARLY PREECLAMPSIA NEW OPPORTUNITIES

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Objectives

The aim of this pilot study was to assess weather sFlt-1/PlGF ratio would be more sensitive and specific predictor of adverse maternal outcome in patients with early severe preeclampsia in comparison to PIER (preeclampsia integrated estimate of risk) score.

Methods

The pilot study prospectively included 38 patients diagnosed with early severe form of PE, according to ACOG Guideline criteria. All patients were admitted to Intensive Care Unit, receiving appropriate prenatal care and observation, with delivery to terminate the disorder within 48 hours. Maternal signs, symptoms, and laboratory findings were assessed at hospital admission to generate PIER score data for predicting maternal outcome. Blood sample for sFlt-1/PlGF ratio was taken at hospital admission and retrospectively analyzed. The numbers and types of maternal complications have been recorded after delivery.

Results

sFlt-1/PLGF ratio correlates better with number of major adverse outcomes in comparison to PIER score and is a better predictor of maternal complications in our pilot study. sFlt-1/PLGF showed that the overall % identification of high risk patients was more accurate then applying PIER score. The complementary use of sFlt-1/PlGF ratio and PIER score showed the best performance, the highest accuracy for prediction of maternal complications. In our study by applying ROC analysis, optimal cut-off 513 for sFlt-1/PlGF was identified for prediction of maternal complications (Sens 62% Spec 100%).

Conclusion

Further prospective multicenter studies are needed to evaluate the usefulness of sFlt-1/PlGF ratio (preferably as a complementary tool to existing PIER score) as an optimal method in the management of preeclampsia and more accurate prediction of adverse maternal outcome.

Keywords

Preeclampsia, sFlt-1/PlGF, outcomes

S59 - LONG TERM FOLLOW UP AND NEUROGENIC BLADDER

Silber M.

The physiological fundamentals of the voiding control will be addressed, depending on a complex interaction between centers in the neuroaxis, afferent and efferent nerve pathways of the central and autonomic nervous system. In the medullary lesion that occurs in the meningo-myeloeles there may be high spinal injuries (predominance of innervation of the sympathetic nervous system), low (predominance of the innervation of the parasympathetic nervous system or both, provoking different behaviors of the bladder (hyper or arreflexia) and of the striated sphincter (permanent relaxation or vesicosphincteric dissinergism. Different patterns of neurogenic urinary dysfunction result from different treatment proposals and urological follow-up of these children. The treatment objectives vary according to age group, in the newborn and in infants is to preserve renal function, in school children is to obtain urinary continence and adolescents and young adults promote autonomy and a healthy sexual life.they will be discussed two management in the accompaniment of children with neurogenic bladder, one more conservative and one more proactive. In conservative management children are monitored with urinary ultrasounds and with periodic culture and urinary sediment exams. Children who are even asymptomatic are submitted to renal scintigraphy (dmsa) every year for follow-up of possible renal lesions. Only at-risk children and those with a clinically disorderly progression (with repeat urinary infections) are submitted to the most invasive procedures such as clean intermittent catheterization (cic), full uradinamic study and micturitional urethrography cyst.will be presented different studies that demonstrate that conservative management in children with neurogenic bladder is a viable option in children with low urological risk. The therapeutic options for clinical treatment of detrusor hypereativity as well as surgical options for bladder enlargement (such as mitrofanoff surgery) and therapeutic options for treating urinary incontinence such as the use of botulinum toxin and aponeurotic sling, among others. The following will be presented the results of the urological follow-up of children who had their congenital meningomieloce corrected by fetoscopy by the safer technique developed by dra denise lapa. 45% (25/55) of children operated antenatally by the safer tecnique present signs and symptoms of neurogenic bladder against 67% (35/52) of children operated by conventional technique (moms study ,p< 0,05. At 30 months of age, 20% (11/55) of children operated by safer technique present necessity of cic x 38 % (29/52) of the operated by conventional technique- moms study), p=0,098. Children operated by the safer technique also present lower use of prophylactic antibiotic therapy and medication for detrusor hypereativity at 30 months of age.

S60 - MORBIDLY ADHERENT PLACENTA

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Morbidly adherent placenta (MAP), also known as placenta accrete spectrum or abnormally invasive placenta is primarily an iatrogenic problem, closely associated with uterine surgery, most commonly cesarean delivery followed by dilatation and curettage and myomectomy. The incidence of MAP is rising worldwide due to the rising rates of cesarean delivery, which is the greatest single risk factor for MAP in subsequent pregnancies. However, even with the rising incidence, MAP is still rare (0.79–3.11 per 1000 births after prior cesarean). Thus, defining an optimal management strategy remains extremely challenging. Optimal management requires both accurate antenatal diagnosis and a robust perinatal management strategy. At the center of such a strategy is a multidisciplinary team that should be available ideally 24 hours a day, 7 days a week. As a minimum, this team should include experts in sonographic and magnetic resonance imaging, experienced obstetricians, surgeon experienced with complex pelvic surgery (often a gynecological oncologist), urologist, colorectal and vascular surgeons, anesthesiologist with expertise in complex obstetric cases, neonatologists, hematologists and interventional radiologists. .The team should also have access to adult and neonatal intensive care, massive transfusion facilities and intraoperative blood salvage services on site. Women at risk for MAP should be identified early in the pregnancy and timely referred to the multidisciplinary team which should operate under a standardized protocol based on evidence and adapted to the characteristics unique for the institution and the patient population in the catchment area. Such a protocol should also be coupled with a systematic data collection on maternal and fetal outcomes, complications, near-misses, accuracy of the diagnosis and effectiveness of interventions. Analysis of such data is valuable to assess and improve the success and effectiveness of the protocols used in the management of MAP, train the future experts and contribute to the literature.

Given the complexity of the management and the preparation required in advance, avoiding false-negative diagnoses is essential. Even in expert hands, the diagnosis of MAP is challenging, and false -negative diagnoses based on imaging are not uncommon. In our experience, all patients with a history of uterine surgery, e.g., 1 or more cesarean section and/or myomectomy and placenta previa in the index pregnancy are at a significant risk of MAP regardless of the imaging results and therefore should be managed following a standardized protocol for MAP. We use MRI in selected cases as an adjunct to sonography. At our institution, the standardized protocol for the management of PAS includes: 1) aggressive treatment to correct anemia antenatally; 2) at least, one course of antenatal steroids; 3) delivery between 34 and 37 weeks by cesarean section; 4) hysterotomy without cutting the placenta; 5) gentle traction of the umbilical cord in an attempt to deliver the placenta; 6) hysterectomy by gynecologic oncologists if indicated; uterine artery catheterization prior to delivery followed by embolization prior to hysterectomy only in suspected cases of placenta percreta in an operating room equipped for interventional radiological procedures; 7) cystoscopy and ureteral stenting in selected cases of placenta percreta; and intraoperative blood salvage. Using this standardized protocol, we were able to demonstrate to lower major maternal morbidity by half and significantly cut down the intraoperative blood loss and the need for blood transfusion as compared to historic controls for whom the management was determined on a case-by-case basis.

Required resources for comprehensive management of MAP may be limited to tertiary care centers with expertise. Thus, pregnant women at risk for MAP, as soon as suspected, should be referred to such centers.

S61 - CURRENT MANAGEMENT STRATEGIES AND NEURODEVELOPMENTAL OUTCOME IN NECROTIZING ENTEROCOLITIS

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Necrotizing enterocolitis (NEC), primarily a disease of preterms, is a major cause of morbidity and mortality. Although prematurity, formula-feeding, infection, and microbial dysbiosis were reported as the most recognized potential risk factors, the pathogenesis of NEC is complex and multifactorial with the primary end point of an inappropriate and exaggarated inflammatory response that result with intestinal dysfunction, inflammation, injury, and necrosis. There are currently no licensed drugs or therapeutics for both prevention and/or treatment of NEC.

The general treatments approach in NEC include stopping enteral feeding, prompt decompression, administration of total parenteral nutrition and intravenous fluid replacement, and broad-spectrum antibiotics. Surgical intervention should be performed in the presence of bowel perforation or necrotic bowel and lack of improvement with medical treatments. At present, new potential prevention and therapies for NEC are mainly focus on the Toll-like receptor 4 inflammatory signaling pathway, the repair of intestinal barrier function, probiotics, antioxidative stress, breast-feeding, and use of immunomodulatory agents.

It is well known that exclusive human milk intake may prevent NEC by reducing the incidence and severity of NEC. In addition, minimal enteral nutrition was also established as a successful strategy to reduce the risk of NEC. Some other strategies including the slow increase in enteral feeding, standard feeding regimens, and avoidance of formula-feeding can also prevent NEC. Oral lactoferrin studies reported promising results for prevention of severe NEC. Maternal and neonatal vitamin D supplementation was also stated as a possible strategy to prevent NEC.

Nowadays, the most discussed subject in the management of NEC include use of probiotics. Although the beneficial effects of probiotics have been studied extensively, there is still a lack of consensus on specific strain types and dosage. It is also unclear whether a single probiotic or a mixture of probiotics is most effective for the prevention of NEC. Therefore, there is no current recommendation for the routine usage of probiotics in preterm infants for prevention of NEC.

Today, several experimental approaches for both prevention and treatment of NEC are on way, we need time to translate the results of experimental studies to clinical usage. Therefore, more high-quality clinical trials are still needed to verify the validity and long-term outcomes of all these potential approaches.

The relationship between NEC and neurodevelopmental impairment has been investigated in several studies and infants with severe NEC were found to have increased risk of cerebral palsy, visual, cognitive and pschymotor impairment. These poor neurodevelopmental outcomes in infants with NEC seem to be multifactorial, including both nutritional and non-nutritional factors. However, it is important to know that survivors of NEC require long-term follow-up to monitor for signs of neurodevelopmental impairment to ensure prompt intervention. The long-term follow-up, early diagnosis and intervention are critically important to improve and optimize long-term neurodevelopmental outcomes in infants with severe NEC. As most of the neurodevelopmental follow-up studies are performed at young ages, longitudinal follow-up beyond preschool age seems to be necessary to represent true long-term outcomes in these infants.

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S62 - CAN LUNG ULTRASOUND HELP TO CLINICIANS IN THE MANAGEMENT OF NEONATAL LUNG DISEASES

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Lung diseases in neonates can be a life-threatening condition if not diagnosed and promptly managed. Chest Xray is traditionally being used as an imaging tool to differentiate lung diseases in newborn. Lung ultrasound is an emerging solution, extremely user-friendly, with no radiation exposure and the physician at the bedside can quickly able to differentiate a normal aerated vs atelectatic lung, respiratory distress syndrome vs transient tachypnoea of newborn, pneumothorax, pleural effusion and bronchopulmonary dysplasia. Lung ultrasound scores are frequently being used now for prediction of the need for invasive ventilation and surfactant therapy. With the advantages of being a real-time readily available bedside imaging tool without any radiation exposure, Lung ultrasound soon would replace or minimize X-rays in NICU for differentiating lung pathologies in neonatal emergencies as well as clinical decision making.

S63 - INFANTS AT THE LIMITS OF VIABILITY – ARE WE HEADING IN THE RIGHT DIRECTION?

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Aim

To define and to discuss medical and ethical issues of premature infants born at the limits of viability in developed and developing countries

Background

The problem of prematurity is increasing in the world with the prevalence of 18% in some African countries and 5% in some European countries with more than 15 million of premature babies born worldwide every year. Survival of premature infants is dependent on the gestational age and birth weight, development of the country and availability of neonatal intensive care. If a premature baby is born before 28 gestational weeks and the neonatal intensive care unit (NICU) is not available, such infant has 95% probability to die. Intensive care is available for only 1% of all premature infants in need. The data concerning the survival of very immature and small premature infants in low-resource settings in developing world are distressing, while in the developed world much more of those babies survive, but survival without major morbidity is stagnant. Increased survival was caused by improvement of: the organization of perinatal care, prenatal care, care in the delivery room, care in the NICU and post discharge. From the historical perspective it could be considered a big achievement of medical science, but still, there is a place for improvement. Antenatal corticosteroid use increased significantly from 78.8% to 85.0% in the period of less than one decade. It has been emphasized that exposure of the infants to human milk and use of human milk at discharge increased, use of medications that were intended for reduction of morbidity (dexamethasone, H2 blockers, metoclopramide, and cefotaxime) declined. The total proportion of babies given early empirical ampicillin and those with negative cultures who were treated for more than three days also decreased, and the proportion of infants who were mechanically ventilated and the median days of ventilator support decreased. Hypothermia on NICU admission decreased as well as the mortality, necrotizing enterocolitis incidence, severe and surgical retinopathy of prematurity, and late onset sepsis. Defining limit of viability is gestational age and birth weight sensitive and is dependent on the biological capability of the infant to survive in the certain society which is dependent on development and wealth of the society. Availability of medical care organization and technology are influencing the survival and the early and the late outcome of the infants at the limits of viability.

Conclusion

Although the approach to the care of tiny infants changed with gentle approach, it seams that there is a need to change our way of thinking to improve the care of the infants at the limits of viability. “Baby astronaut” or gravity, age, thermoregulation and oxygenation (GATO) hypothesis maybe helpful in changing the environment in which babies are nurtured. The animal model of artificial uterus (“Biobag”) in Philadelphia Children’s Hospital in USA has been launched and presented. Is this the future of the care for tiniest infants and could it decrease the gestational age of 22 gestational weeks considered nowadays as the limit of viability?

S64 - ABNORMAL INTRACRANIAL TRANSLUCENCY: ASSOCIATED SONOGRAPHIC AND CLINICAL FINDINGS

Yayla M.

For more than two decades new methods are recommended for the early diagnosis of neural tube defects during pregnancy. Most of the studies conducted on this area are for the detection of open spina bifida using especially visualization and measurement of intracranial translucency (IT). Further studies reported that this technique could be used for chromosomal anomalies and other defects. On the other hand, being unable to see or measure IT in the posterior fossa examination between 11 and 13 weeks of gestation does not always indicate an abnormality.

We are screening the IT during the first trimester scanning for 10 years and we aimed to investigate the reasons of non-visualization or measurability of IT and the consequences of this finding. Retrospectively, the data of 1914 singleton pregnancies with positive or negative IT was evaluated and compared for the distribution of fetal malformations, chromosomal anomalies, fetal losses as well as maternal characteristics.

The rate of the cases whose IT could not be measured or visualized in posterior fossa was 4.05% during the initial scanning. We observed that the rates of maternal age, obesity, uterine anomalies, malposition and myomas, and also fetal posture disorders were higher in IT (-) cases than IT (+) cases. We noticed that in false negative cases (n=71), these factors were prominent and there were no fetal pathological findings.

Compared to the group whose IT could be measured, poor prognosis of gestation, fetal loss or termination of pregnancy, existence of early genetic markers, the presence of chromosomal anomaly, the rate of central nervous system and other systemic malformations were statistically significantly higher in the group whose IT could not be measured. In the IT (-) cases, the sensitivity was 26.9%, the specificity was 95.9%, the positive predictive value was 21.9%, the negative predictive value was 96.9%, the accuracy rate was 93% and the odds ratio was 8.7 to predict the poor gestational prognosis mentioned above.

Considering the followed-up cases (n=96) in our series, we found that 73.9% of IT (-) cases were completely normal, 4.2% of them had normal prognosis together with mild findings such as Blake’s pouch cyst, and 21.9% of them had significant pathologies. When we excluded the cases that we interpreted as false negative, the rate of actual IT (-) cases was 1.3% (25/1914) and we revised the rate of outcome with a poor gestational prognosis as 84%. Thus, the early detection of central nervous system anomalies by IT screening had a new sensitivity of 42% with a 95% accuracy rate. In other series, this rate varied between 0-100%.

As a result, assessment of IT during first trimester scanning can alert for the early diagnosis of central nervous and other system malformations and also for some chromosomal anomalies which could influence gestational prognosis.

S65 - PREDICTION OF PREECLAMPSIA USING DOPPLER ULTRASOUND EXAMINATION AND HEMOSTASIS PARAMETERS

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Objective of the study

Early diagnosis and prevention of preeclampsia using Doppler ultrasound examination and hemostasis parameters, including hereditary thrombophilia and antiphospholipid antibodies

Keywords

Doppler ultrasound, preeclampsia, thrombophilia, intrauterine growth retardation, antiphospholipid syndrome

Preeclampsia is one of the most severe complications during the pregnancy. According to WHO, the incidence of preeclampsia is 7 times higher in the developing countries (2.8%) than in the developed countries (0.4%) [1]. The disease is one of the three leading causes of maternal morbidity and mortality all over the world.Preeclampsia may lead to the development of placental insufficiency and intrauterine growth retardation, which in their turn lead to higher frequency of preterm delivery and operative delivery [4].

Depending on gestational age, there is early preeclampsia (found before 34 weeks) and late preeclampsia (found after 34 weeks).

Materials and Methods

The study included 76 pregnant women: control group - 27 (35.5%) women with normal pregnancy and 49 (64.5%) women with complicated pregnancy: with preeclampsia - 15 (19.8%), intrauterine growth retardation - 12 (15.8%), preeclampsia and intrauterine growth retardation - 22 (28.9%). All women were examined by Doppler sonography in their 23-26, 32-37 and after 37 weeks of pregnancy. The blood flow velocity waveforms were recorded for uterine, umbilical, basilar and vertebral arteries of the fetus. The hemostasis testing included the evaluation of blood plasma coagulation levels and fibrinolysis parameters (D-dimer), determination of antiphospholipid antibodies (APA) circulation and genetic forms of thrombophilia.

Results

Thrombophilia was found in 31 (63.3%) pregnant women with pregnancy complications. Genetic forms (55.1%) and circulation of antiphospholipid antibodies (22.4%) were most frequently observed in patients with intrauterine growth retardation and preeclampsia. In general, we have observed 6.1% of heterozygotes for FVL (Factor V Leiden), homozygotes - 4.1%, heterozygous MTHFR C677T – 30.6%, homozygous – 14.3%, gene PAI-1 4G/4G polymorphism – 14.3%, 4G/5G – 20.4%, homozygous 455G/A polymorphism of fibrinogen – 4.1%, heterozygous – 8.2%, homozygous polymorphism of platelet GpIa receptor – 6.1%, heterozygous – 8.2%, polymorphism of platelet GpIIIa receptor – homozygous - 2.0%, heterozygous – 8.2%, heterozygous ACE (I/D) polymorphism – 10.2%, heterozygous 1166 A/C polymorphism of angiotensin II receptor – 4.1%, isolated APA – 8.2%. Abnormal uterine-placental hemodynamics was observed in all cases of pregnancies with intrauterine growth retardation complications. Fetoplacental circulation was abnormal in 21 (61.8%) cases with intrauterine growth retardation, in 50.0% of preeclampsia cases and in 83.3% of cases without preeclampsia. 6 cases (40.0%) of abnormal uterine-placental hemodynamics were observed in women with preeclampsia and without intrauterine growth retardation. All patients with intrauterine growth retardation had high levels of blood plasma coagulation and fibrinolysis parameters (D-dimer). The changes in levels of blood plasma coagulation and

fibrinolysis parameters were most clearly expressed in cases of pregnancy with abnormal fetoplacental circulation as compared with the control group.

Conclusions

The widespread use of Doppler sonography and thrombophilia testing can contribute to the early diagnosis of pregnancy complications such as preeclampsia and intrauterine growth retardation, thus ensuring the effective prevention of these pathologies.

S66 - OVERVIEW OF NEONATAL SEPSIS

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Neonatal sepsis continues to be a common and significant healthcare burden, especially in very low birthweight infants (VLBW). Neonates are predisposed to infections during the perinatal period due to their relatively immature immune system and multiple exposures to serious bacterial, viral and fungal infections. The incidence of neonatal infections varies by geographic region and maternal and neonatal risk factors. Worldwide, it is estimated that the neonatal mortality from invasive infections accounts for more than 1.4 million neonatal deaths annually. Risk factors for early-onset neonatal sepsis (EOS) include prematurity, immunologic immaturity, maternal Group B streptococcal (GBS) colonization, prolonged rupture of membranes, and maternal intra-amniotic infection. Intrapartum antimicrobial prophylaxis administered to GBS-colonized women has decreased the incidence of early onset GBS invasive infections dramatically. Active surveillance has identified Gram-negative pathogens as an emerging etiology of early-onset invasive infections. Late-onset neonatal sepsis (LOS) attributable to Gram-positive organisms, including coagulase negative Staphylococci and Staphylococcus aureus, is associated with increased morbidity and mortality among premature infants. Invasive candidiasis is an emerging cause of late-onset sepsis, especially among infants who receive broad spectrum antimicrobial agents. Prophylactic fluconazole administration to VLBW during the first six weeks of life reduces invasive fungal infections in neonatal intensive care units. The clinical decision of administering prophylactic fluconazole routinely to preterm infants should be made based on the local setting, including the epidemiology. Prevention of healthcare associated infections through antimicrobial stewardship, early enteral feeding, limited use of invasive devices and standardization of catheter care practices and meticulous hand hygiene are important and cost-effective strategies for reducing the burden of late-onset neonatal sepsis.

Keywords:
early-onset neonatal sepsis , late-onset infections, premature infants, risk factors, etiologic agents, strategies for prevention, antimicrobial treatment

S67 - GENETIC DIAGNOSIS OF THE MOST FREQUENT SYNDROMES

Kohlschmidt N.

Congenital heart disease, anomalies of the kidneys and urinary tract, increased nuchal translucency and CNS anomalies are frequent hallmarks for fetal syndromes. Bone dysplasias, abdominal wall defects, reduction deformities, thoracic and gastrointestinal abnormalities are less common but equally important.
Chromosomal aberrations are the most common cause for antenatal abnormalities, many of which are microscopically visible. But about half of all chromosomal changes may only be detected by microarray techniques or in situ hybridisation.
Whilst for some monogenic syndromes, i.e. Wiedemann-Beckwith syndrome or Noonan syndrome, analysis of only one or very few genes is often successful to establish a definite diagnosis, more extensive NGS-methods are required in case of unspecific features such as renal cysts or curved tubular bones.
-ome techniques might replace symptome guided diagnostic methods not too far but are still requiring validation for prenatal use.
Some common prenatal situations will be jointly discussed in view of established techniques.

S68 - BENEFITS DERİVİNG FROM THE USE OF HM

Kültürsay N.

Human milk (HM) is nutritionally the best for both term and preterm infants. The significant advantages for preterm infants are empowered host defense, gastrointestinal development and maturation, neurological development, reduction of necrotizing enterocolitis(NEC), retinopathy of prematurity (ROP) and bronchopulmonary dysplasia (BPD) as well as mental and physical benefits for the mother.

Human milk protection against infection persists longterm even when it is not further consumed: Immun regulatory effect. Maternal immune memory is transferred to child by HM. Human milk positively affects the immune system and neurocognitive development in dose dependent manner .

The bioactive components of HM protect against infection and inflammation,contribute to immune maturation,organ development, healthy microbial colonization. Human milk hormones, growth factors , gastrointestinal mediators stimulate gastrointestinal growth and motility, and enhance the maturity of the gastrointestinal tract. Human milk is associated with neonatal intestinal colonization by the beneficial microbes of Bifidobacteria and Lactobacillus species. Many other factors such as anti-inflammatory agents (eg, interleukin 10) , polyunsaturated fatty acids,enzymes (eg, platelet-activating factor [PAF] acetylhydrolase), Immunoglobulins, lactoferrin, oligosaccharides(e.g. disialyllacto-N-tetraose (DSLNT)and oligosaccharide 2′-fucosyllactose), are all protective against NEC. Osteopontin, milk fat globule membrane proteins, HAMLET are newly discovered immune protective agents of HM. Human milk also has miRNAs, live immun cells(leucocytes) and multipotent and pluripotent stem cells that can be transfered to gastrointestinal system and neonatal tissues.

Lower renal solute load, Whey-dominant proteins, high Omega-3 fatty acid content (DHA ve EPA), better absorbsion of lipids, Zn, iron are important beneficial factors of HM. When compared with formula, HM increase the rate of gastric emptying ,increase the intestinal lactase activity, decrease the intestinal permeability, decrease the risk of NEC and sepsis early in life in premature infants. Preterm infants tolerate HM better than formula, reach full enteral feeds sooner, and are discharged earlier. The incidence and severity of ROP the incidence of BPD and periventricular leukomalasia (PVL) decrease. Improved long-term cognitive development, better Visual and Hearing function, better blood pressure and lipid profiles in adolescence are reported for HM fed ex-preterm infants.

Own mother’s milk (OMM) of preterm infant has more protein and minerals in the first few weeks compared to term mother’s milk. Together with the other important features this makes fresh OMM is the first preference for the preterm infant. However when OMM is lacking or during the transition time to obtain OMM, pasteurised donor milk (DM) can be used as a second choice. The cost of DM is comparable to preterm formula. In preterm and LBW infants, moderate-certainty evidence indicates that feeding with formula compared with donor breast milk, either as a supplement to maternal expressed breast milk or as a sole diet, results in higher rates of in-hospital weight gain, linear growth, and head growth but a higher risk of developing NEC. Fortification of DM with HM based fortifiers may decrease the risk of NEC.

S69 - FAMILY EXPECTATIONS FROM THE STAFF OF NICU

Kültürsay N.

The needs of family members are mostly not taken into consideration in classical neonatal intensive care units (NICUs). All interest and care is focused on the sick infant. Parents must cope with intense and confusing emotions during the crisis of premature parenthood. They feel shock, worry, anxiety, anticipatory grief reaction and need attention by the healthcare providers. The parents' presence and participation in the care of the infant is fundamental to reduce this stress and to provide optimal care for both the premature or sick infant and family.
Parental needs are frequently reported as support, comfort, reassurance, information and closeness and these needs are mostly unmet in NICUs. Analysis of 60 research revealed six needs (a) accurate information and inclusion in the infant's care, (b) vigilant watching-over and protecting the infant, (c) contact with the infant, (d) being positively perceived by the nursery staff, (e) individualized care, and (f) a therapeutic relationship with the nursing staff. Our survey on our NICU mothers and nurses also revealed that parents need further support.
Physical contact with the baby and participating in care, access to information written in a clear language, more flexible visiting policies to meet different family dynamics, being present at ward rounds, consistency of staff are given as important for parents. Staff must be able to recognise parent’s emotional and practical needs and respond appropriately. The needs of parents can be met by informing parents about treatment plan and procedures, answering parents' questions honestly, actively listening to parents' fears and expectations, assisting parents in understanding infant responses to hospitalization and other effective nursing interventions.
During the infants' hospitalization, the relationship between parents and nurses is challenging due to a discrepancy between parents' and nurses' expectations of their roles. Parents–staff relationships and communication in NICU may sometimes be difficult especially for the nurses, but should never be a reason for separating mothers and fathers from their babies . The mothers who have positive relationships with care providers are more satisfied with the care received and report higher levels of psychologic well-being. The parents identify the nurses as the primary source of information.
The emerging care delivery model for NICUs is family-focused, developmentally supportive care. Active involvement in the infant's care and Kangaroo Mother Care give parents a sense of control and strengthen their motivation to be with their infant. Family centred care can help to meet the family needs, reduce the negative impact of premature birth on a family and is associated with long-term benefits.

S70 - RECURRENT PREGNANCY LOSS: WHAT IS THE EVIDENCE BASE NOW?

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A pregnancy loss (miscarriage) is defined as the spontaneous demise of a pregnancy before the fetus reaches viability. It includes all pregnancy losses from the time of conception until 24 weeks of gestation. Primary recurrent pregnancy loss (RPL) is described as RPL without a previous ongoing pregnancy (viable pregnancy) beyond 24 weeks' gestation, while secondary RPL is defined as an episode of RPL after one or more previous pregnancies progressing beyond 24 weeks' gestation. By definition, "recurrent" pregnancy loss is defined as the loss of two or more pregnancies.
GDG recommend the use of "recurrent pregnancy loss" to describe repeated pregnancy demise and to reserve 'recurrent miscarriage' to describe cases where all pregnancy losses have been confirmed as intrauterine miscarriages.
The exact prevalence of RPL is difficult to estimate. Some authors reported 1-2% of women with three or more PL prior to 20 weeks. (Ford, Shust 2009).
Larsen reported a prevalence of 0.8 – 1.4% among women with two or more pregnancies lost (confirmed by US and/or histology). Adding biochemical losses increases the prevalence to 2-3% (Larssen et al. 2013).
There is a significant psychological and emotional impact on women and their partners because it represents the loss of a baby and a sense of personal failure. Support and understanding, along with acknowledgement that these reactions are normal and understandable, can help most patients, but some of them will require referral for professional counselling or support.
There are some risk factors for RPL:

- Age (the risk of PL is low in women aged 20 to 35 years and rapidly increases after the age of 40).
- Number of pregnancy losses (there is also a significant decrease in chance of a live birth by increasing number of miscarriages).
- Environmental exposure (exposure to occupational and environmental factors such as heavy metals, pesticides, etc.) seems to be associated with increased risk for RPL).
- Obesity, smoking and alcohol are some other possible risk factors for pregnancy loss.

What do New Guidelines say?
The ESHRE guidelines of November 2017, represents the scientific evidence available at the time of preparation. In the absence of scientific evidence on certain aspects, a consensus between the relevant ESHRE stakeholders has been obtained.
Concerning screening for genetic factors the GDG recommend that genetic analysis for pregnancy tissue is not routinely recommended but it could be performed for explanatory purposes. Parental karyotyping is not routinely recommended in couples with RPL. It could be carried out after individual assessment of risk.
For women with RPL, GDG suggest not to screen for hereditary thrombophilia unless in the context of research, or in women with additional risk factors for thrombophilia. Concerning acquired thrombophilia, for women with RPL, GDG recommend screening for antiphospholipid antibodies, LA and ACA (IgG and IgM) after two pregnancy losses.
Concerning immunological screening, no immunological biomarker, except for high-titer AFL antibodies can be used for selecting couples with RPL for specific treatments. Immunotherapy, including paternal cell immunisation, trophoblast membranes immunisation, intravenous immunoglobulin, in women with previous unexplained RPL, does not improve the live birth rate.

TSH and TPO antibodies are recommended for thyroid dysfunction. Hypothyroidism arising before conception or during early gestation should be treated with levothyroxine in women with RPL.
There is insufficient evidence to recommend the use of progesterone to improve live birth rate in women with RPL and luteal phase insufficiency.
Treatment of some congenital or acquired uterine anomalies such as hysteroscopic septum resection or submucous myomas may have some beneficial effects (improving live birth rates, and decreasing miscarriage rates, without doing harm), but it should be evaluated in the context of surgical trials in women with RPL.
Concerning treatment of unexplained RPL, vaginal progesterone does not improve live birth rates in these women. There is no evidence to recommended endometrial scratching in women with unexplained RPL.
Concerning cervical insufficiency, in women with a history of second-trimester PLs and suspected cervical weakness should be offered cervical sonographic surveillance. In women with a singleton pregnancy and a history of recurrent second-trimester PL attributable to cervical weakness, a cerclage could be considered. There is no evidence that this treatment increases perinatal survival.

S71 - RECENT ADVANCES IN SURFACTANT REPLACEMENT

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Surfactant replacement became the most effective evidence-based therapy for respiratory distress syndrome (RDS). The mode of administration has evolved from endotracheal surfactant bolus administration during mechanical ventilation over Intubate-SURfactant-Extubate (INSURE) followed by continuous positive airway pressure (CPAP) towards less invasive surfactant administration (LISA) that aims to provide an adequate dose of surfactant effectively while the infant is breathing spontaneously, without positive pressure. These methods include pharyngeal, laryngeal mask, thin catheter or aerosolized surfactant administration. Following LISA, surfactant spreads quickly, making use of its unique biophysical properties without the need for positive pressure ventilation.

The effectiveness of LISA in preventing mechanical ventilation in the first 72 hours strongly depends on GA, and meta-analysis demonstrates that the rate of BPD in infants who have received surfactant by the LISA technique is low compared with standart methods. LISA effectiveness is not high in preterm infants with severe RDS and above 32 weeks. LISA is a manipulation that requires specific skills and should therefore only be performed by neonatologists experienced in airway management. Failure to insert the catheter at first attempt, surfactant reflux, desaturations, bradycardia and/or need for manual ventilation during LISA were observed in <10% to >30% of LISA manipulations. Surfactant deliveries via nebulisation, pharyngeal instillation, bronchoscope or laryngeal mask are alternative techniques that are currently being actively pursued in research, but have not yet been adopted to any significant degree into clinical practice.

New fast bedside lung maturity test on fresh gastric aspirate (GAS) for early targeted surfactant treatment has been developed. The method is designed for use as a predictive test at birth, and a spectroscopic prototype has been developed for bedside use. Clinical trials with this new lung maturity test are planned. On the other hand, lung ultrasonography (LUS) is increasingly used by clinicians in the management and follow-up of RDS in premature infants.

Current evidence suggests that inhaled corticosteroids (CS) may be an effective therapy in the management of developing BPD in preterm infants, but questions about their safety remain. An alternative to inhalation is the intratracheal administration of CS using surfactant as a vehicle, but this approach has only been studied in a limited number of infants.

The supply of animal-derived lung surfactants is limited and only a part of the preterm babies is treated. Thus, there is a need to develop well-defined synthetic replicas based on key components of natural surfactant. A synthetic product that equals natural derived surfactants would enable cost-efficient production and could also facilitate the development of the treatments of other lung diseases than neonatal RDS. Future research will include LISA with new synthetic surfactant preparations. The unique properties of surfactant as a ‘vehicle’ may be used to facilitate the spread of drugs to the peripheral airspaces in the lung. In this context for example, surfactant/budesonide mixtures are under investigation by various groups, connected with the hope to have good local effectiveness without relevant systemic side effects.

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S72 - ANALYSIS OF STIC FLOW IMAGING CHARACTERISTICS OF FETAL DOUBLE AORTIC ARCH AND RIGHT-SIDE AORTIC ARCH WITH MIRROR CAROTID BRANCH

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Objective

To improve the differential diagnosis of double aortic arch (DAA) and right-side aortic arch combined with mirror carotid artery branches (MRAA) by using 4-dimensional spatio-temoral image correlation (STIC) technology.

Materials and methods

From January 2016 to December 2018, STIC acquisition was used to observe the origin, course and shape of suspected vessels and their branches from different angles, directions by scrolling through the STIC volume.

Result

Prenatal diagnosis of DAA in 4 cases, MRAA in 21 cases, 24 cases had the same prenatal and postnatal diagnosis, 1 case of MRAA was confirmed DAA combined with left aortic arch atresia after birth. In 4 cases of DAA diagnosed prenatally, the suspected vessels converged with the ductus arteriosus(DA) first, and then converged to the descending aorta, the origin of left subclavian artery(LSA) was closer to the descending aorta; in 20 cases of MRAA confirmed after birth, the origin of LSA was closer and proximal of the heart in 19 cases and to the descending aorta in 1 case. Among 25 cases, 21 cases have arch at the beginning of LSA, 3 cases of DAA, the back of the arch pointed to the dorsal side of the fetal body, and 18 cases of MRAA,the back pointed to the ventral side of the fetus.

Conclusion

STIC blood flow assisted in diagnosing whether suspicious blood vessels converge into the descending aorta or not, and the origin, position and morphological characteristics of the LSA are also helpful for their differential diagnosis.

S73 - THE CONSTRUCTION AND APPLICATION OF A CROSS-SECTIONAL DATABASE IN FETAL ECHOCARDIOGRAPHY

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Objectives

Establish a fetal congenital heart disease(CHD) cross-section image database(CSD) to enhance interpretation of ultrasound images obtained from the transverse scanning screening(TSS) protocol to improve prenatal detection of CHD.

Methods

From January 2009 to December 2018, transverse real-time 2-dimensionsal clips were obtained by directing the transducer from the fetal abdomen to the upper chest that included the following: four-chamber, left and right ventricular outflow tracts, transverse ductal and transverse aortic arch, trachea views. The digital cross-sectional ultrasound clips were stored in a database (UCSD). Fetuses in which pathology specimens were available were used to establish a CHD anatomical cross-sectional database (ACSD). The combination of the UCSD and ACSD constituted the CSD.

Results

160 CSDs were established, 48 of them had both UCSD and ACSD, 19 fetuses had only ACSD, and 93 fetuses had only UCSD. During a continuously looped digital display of the UCSD and ACSD, the five views from the four-chamber to the tracheal view were clearly displayed and in high consistency.

Conclusions

The high consistency between UCSD and ACSD can help physicians and sonographers to master the anatomical and ultrasound characteristics of different types of CHD. This could result in an increase in the implementation of the TSS technique, proposed by ISUOG guidelines.

S74 - DOPPLER IS DIFFERENT IN FETUSES WITH SINGLE UMBILICAL ARTERY

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Objectives

To assess the PI trough UA and MCA and to assess the CPR in fetuses with Single Umbilical Artery (SUA) after 21 weeks of gestation
To identify if differences in measurement could change the significance / interpretation and potentially the case management

Methods

A retrospective observational study identified patients with SUA from fetuses examined between 15.11.2011 and 25.02.2018 by single operator.
Fetuses with structural or chromosomal abnormalities were excluded from the study.
We analysed the measured UA's and MCA's PI and calculated CPR for fetuses examined with gestational age between 20-38 weeks by transforming it to MoM and calculating the mean MoM for this group of patients.
As a control and validation of our study population we evaluated the MoM s for UA and MCA PI for the 3 vessel ombilical cord fetuses examined in the same conditions.
UA PI was transformed into MoM using ACHARYA G et al. Reference ranges for serial measurements of umbilical artery Doppler indices in the second half of pregnancy. Am J Obstet Gynecol.2005;192:937-44.
MCA PI and CPR were transformed using C.EBBING, S.RASMUSSEN and T.KISERUD; Middle cerebral artery blood flow velocities and pulsatility index and the cerebro-placental pulsatility ratio: longitudinal reference ranges and terms for serial measurements; Ultrasound Obstet Gynecol 2007; 30: 287–296.

Results

There were 4218 distinct patients and 57 fetuses with SUA (1,35% SUA) and gestational age at exam between 21-38 weeks. Ten fetuses were excluded for other associated abnormalities.
Fortyseven cases with Single Umbilical Artery were analysed.
Mean MoM PI for SUA was 0,0,89 while mean MoM for MCA PI was 0,94.
Calculating CPR MoM resulted in a mean of 1,02.
For the 3 vessel cord fetuses the MoM PI for UA was 1,00.

Conclusions

Our study group have a normal distribution of UA PI related to nomograms for 3 vessel cord fetuses thus validating the use of specific nomograms to evaluate differences for Doppler in SUA fetuses.
Vasodilatation in SUA is a reasoned adaptation consequence to compensate for diminished bloodflow vascular section. This is proven trough reduction in expected PI in SUA around 10%.
In order to maintain the blood / bloodflow in fetal territory a proportional response within fetal cardiovascular system is observed with reduction in expected MCA PI.
Balanced vasodilatation appear to be the rule for otherwise normal fetuses with SUA.

When interpreting and making clinical decision based on individual values either for SUA PI or MCA PI compared with nomograms established for normal fetuses one should take into account the 10% bias due to adaptive balanced vasodilatation in fetuses with SUA.
Only CPR should be used uncorrected for clinical interpretation and decision making in fetuses with SUA.

S75 - METFORMIN IN PREGNANCY: POSSIBLE OR EFFECTIVE?

Arısoy R.

The prevalence of diabetes in pregnancy is increasing worldwide as the pregnant population is becoming older and also as the prevalence of obesity is increasing. The majority is gestational diabetes mellitus (GDM). Gestational diabetes is a complication in about 5% of pregnancies and is associated with complications to the pregnancy and a long-term risk of diabetes in both mother and offspring. GDM should be explained in a detailed way to women at the time of diagnosis of gestational diabetes and offer women advice about changes in diet and exercise. 70–85% of women with GDM can control blood glucose levels with lifestyle changes alone. Medications should be added if needed to achieve glycemic targets. Three pharmacologic therapies are used to treat GDM: insulin, metformin, and glyburide. Metformin is an oral biguanide that primarily acts to decrease hepatic glucose production by inhibiting gluconeogenesis. It also improves insulin sensitivity and increases glucose uptake in peripheral tissues and decreases glucose absorption in the gastrointestinal tract. Metformin in pregnancy crosses the placenta but metformin does not increase congenital abnormalities and is generally well tolerated. Serious side-effects are very rare. In women with GDM, metformin is not associated with increased perinatal complications as compared with insulin. The use of metformin has similar or better results than the use of insulin. Particularly, metformin was associated with less maternal weight gain and less neonatal hypoglycemia. Another advantage of metformin is that metformin has a lower cost and higher patient acceptance, which may increase patient satisfaction and/or compliance. Consequently, metformin has gained acceptance as a safe, effective and rational option for GDM. Moreover, metformin is clearly more attractive than insulin to treat women with GDM.

S76 - WE ARE DEALING WITH CHROMOSOMAL ABNORMALITIES SINCE 30 YEARS: RECENT PRACTICE

Arısoy R.

Screening for fetal chromosomal abnormalities is an essential part of antenatal care. Historically, screening for fetal aneuploidy in pregnancy began in the 1960-1970s with maternal age as the only available marker. Women older than 35 years at the time of delivery were offered genetic counseling and amniocentesis because of procedure- related loss rates. However, screening with maternal age alone (cut-off >35years), could detect about 30% of trisomies. The first breakthrough in screening for fetal chromosomal abnormalities was done in 1988 with the introduction of a multiple marker screening test, based on a “risk” calculation for each pregnant woman using her age and three biochemical markers: human Chorionic Gonadotropin (hCG), maternal serum α-fetoprotein, and unconjugated Estriol (Triple test) from blood samples in the second trimester of pregnancy. In 1992, ultrasound fetal nuchal translucency (NT), by far the single best individual marker, was introduced and in 1997, a new multiple marker screening test the Combined test, using NT, Fb-hCG and Pregnancy Associated Plasma Protein –A was started. Since then various prenatal screening concepts have been developed, the most successful being Down syndrome risk estimation using multiple serum and ultrasound markers. Today a completely new approach to aneuploidy screening is available based on maternal plasma cell-free DNA testing. This has the potential to markedly improve screening performance but routine testing is currently too expensive in a public health setting. However,it can be cost-effective when used in combination with existing multi-maker tests. Presently, combined test in the first trimester is recommended for screening protocol in most countries. For women who do not present until the second trimester, the quadruple screen is recommended. A "genetic sonogram" uses ultrasound to assess the fetus for both structural anomalies and soft markers suggestive of Down syndrome. It is typically performed in the second trimester, but this screening is also useful in the first trimester and is becoming widespread. Women who receive a screen-positive result for any of the screening tests discussed should be offered the choice of an invasive test (chorionic villus sampling- amniocentesis) for genetic testing to definitive diagnosis. If the patient refuses invasive testing, noninvasive screening via cell-free DNA is an option. It is important that patients be counseled about the limitations of cell-free DNA screening in the setting of fetal anomalies as normal results can be falsely reassuring and abnormal results may be falsely positive. In the anomalous fetus, the frequency of a chromosome abnormality depends on the specific anomaly, the number of anomalies, and the combination of anomalies identified. The invasive diagnostic tests should be offered for karyotype analysis to all women with a structural fetal anomaly identified on ultrasound examination.

J. Perinat. Med. 2019; 47 (Suppl) ● Copyright © by Walter de Gruyter ● Berlin ● Boston. DOI 10.1515/jpm-2019-2500

S77 - THE ROLE OF IMAGING DETECTION OF CONGENITAL DEFECTS IN THE ERA OF PGT-A AND NIPT

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Owing to the improved advances of molecular genetics, exome and genome sequences have been easily performed with shorter turnaround time, less cost and less manpower. NIPT launched from early 2010s, is the placental cell-free DNA test from the maternal blood specimen. NIPT is basically the screening test of three major trisomies however has been used as the screening of other aneuploidy and/or chromosome structural abnormalities such as specific microdeletion syndromes. PGT-A is the pre-implantation screening test by NGS of fertilized eggs and this test is offerable only for IVF pregnancy.

At the beginning of those molecular genetical tests, it had been thought that diagnoses of congenital malformation would be done by PGT-A and NIPT and imaging diagnoses would not be necessary in near future. However, there still be many of intrauterine malformations which cannot be detected by PGT-A and NIPT, such as single gene mutations, complexed genetic mutations, and morphological malformations with unknown causes, cortical malformations during brain developmental stages, intrauterine injuries by circulatory problems or viral infection and others. Detailed ultrasound imaging has been discovering and clarifying those abnormalities.

Recent development of 3D ultrasound has resulted in remarkable progress in visualization of early embryos and fetuses in sonoembryology. Morphological detection of fetal organs has been more and more in detail from the first trimester and longitudinal ultrasound approach during pregnancy can add fetal developmental information. Many of congenital malformations are at present detectable by ultrasound in the first trimester. The ability to visualize not only fetal face, hands, fingers, feet, and toes but also amniotic membranes is better with volumetric ultrasound than conventional ultrasound. Fetal ultrasound further "humanizes" the fetus, enables detailed observation of the fetal face in the first trimester, and reveals that a small fetus is not more a fetus but a 'person' from the first trimester.

Fetal ultrasound further recognizes fetal brain development. Neurosonoembryology has been established and still continues to evolve, and congenital anomalies such as acrania, holoprosencephaly and spina bifida have been detected in early gestation, because primary and secondary neurulation and prosencephalic development occur before the 3rd month of embryo. However, neuronal proliferation, migration and organization, which are important steps of the fetal brain development occur from the end of the first trimester therefore disorders relating to proliferation, migration and organization cannot be detected in the first trimester. While normal heart and other organs maintain almost the same internal structure throughout pregnancy after once being created, brain structure is created toward the final structure throughout pregnancy and shows quite different morphology in the early, middle and late pregnancy. Transvaginal ultrasound neuroimaging has revealed those developmental stage of fetal brain and their malformations in early to middle second trimester. Subtle developmental delay by neuroimaging can lead to the single gene mutation as the cause of congenital neuronal disorder.

Furthermore, owing to the advanced technology of flow detection and four dimensional ultrasound, organ functions can be detectable by ultrasound angiography and fetal movement investigation.

In conclusion, image detection by ultrasonography is the major part of prenatal diagnosis and will continue to play an important role in the future.

S78 - FETAL BRAIN ABNORMALITIES AND GENETIC CAUSES

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Fetal CNS is remarkably developing in the first trimester of pregnancy and changing its appearance from premature tubal structure to the bilateral cerebri, cerebellum and brainstem. Neuro-sonoembryology has been improved with great advances of 3D ultrasound technology such as HDlive silhouette technology and studio-live technology.

Recent advanced transvaginal three-dimensional neuroimaging has successfully demonstrated holoprosencephaly at 9 weeks in a case with 19 mm-CRL. However, detectable CNS abnormalities are limited in the first trimester, such as cranium bifidum, spina bifida and holoprosencephaly because those are congenital malformations resulted from neurulation and/or major prosencephalic disorders. The human brain is remarkably developing with neuronal proliferation and migration and will take place from 3rd or 4th months of gestation.

The term of malformations of cortical development (MCD) was first introduced in 1996 as a group of disorders that result from disturbances of the normal developmental processes of the human cerebral cortex and cause a wide range of developmental disorders of the cortex that are common causes of neurodevelopmental delay and epilepsy. MCDs result from a diverse molecular disruption of normal brain development and manifest as a wide array of anatomical and functional phenotypes, and classified into three groups; Group I as proliferation or apoptosis disorder, including microcephaly, megalencephaly spectrum, focal cortical dysplasias (FCDs) type IIa and IIb, Group II as migration disorder, including tubulinopathies, variant lissencephalies, gray matter heterotopia and cobblestone malformations, and Group III as post-migrational disorder, including polymicrogyria and schizencephaly. In any group or any type of MCD, various gene mutations are deeply responsible as causal factors of cortical maldevelopment.

From the early second trimester, the brain structure can br clearly observed by ultrasound and most of congenital brain anomalies can be detected but it is quite hard to detect neuronal proliferation, migration, post-migration and their disorders during pregnancy. Phenotypes of MCDs conspicuously appear after 28 weeks of gestation when cortical gyri/sulci are clearly visualized by sonography. It has been believed that it is quite hard to detect or predict cortical maldevelopment before 28 weeks. "Early detection of migration disorder before gyration" by sonographic neuroimaging is one of our important challenges. From our experience, early detection of MCDs has been possible by using transvaginal high-resolution 3D ultrasound from early second trimester by observation of Sylvian fissure appearance, abnormal early sulcation, irregular ventricular wall, hyperechoic ventricular zone/subventricular zone, persistent ganglionic eminence (GE) and cavitation inside persistent GE, and medullary venous developmental delay. We have been performing close observation of those brain structural changes in detail in cases of MCDs with genetical investigation and believe that our recent challenge for fetal brain may help to establish a new field of fetal neuroscience and contribute to prevention and early intervention in future.

S79 - THYROID FUNCTION IN PREGNANCY

Ayala R.

Although the complications reported, due to hypothyroidism remain low, most of these are of serious consequence and may even be not evident until advanced neurocognitive development of a child born to a mother with thyroid deficiency. Current controversy lies on the stimulus by hCG-β due to analogous protein structure with TSH in early pregnancy stages, which may interfere with current thyroid hormone essays and complicate proper identification of any thyroid hypofunction. Present knowledge on all the functions of these hormones during embryonic and fetal stages are not fully known and may pose a key factor to further enhance a proper prenatal cate. Various organizations recommend performing thyroid function tests only in the presence of risk factors as well as clinical manifestations, although others do encourage doing these tests as a screening on all pregnant women. Within our protocols, we have found a significant population of hypothyroid women, of which, almost half do not have any risk factors or clinical signs or symptoms. Reviewing all what is known about thyroid hormone function, does open a small gap on the possibility of missing a proper diagnosis and prevent complications.

S80 - NEONATAL ASPECTS OF SPINA BIFIDA AFTER PRENATAL REPAIR

Brock Zacharias R.S.

Myelomeningocele (MMC) is a congenital abnormality of the central nervous system resulting from a failure of the neural tube to close, exposing spinal cord and nerves and leading to an abnormal development of the central nervous system and its consequences.
The pre-natal surgical repair offers better prognosis in terms of mobility outcomes, decreased hindbrain herniation and decreased need for cerebral spinal shunting as measurable outcomes when compared to open surgery after birth. Due to this new surgical intrauterine procedure, the neonatal care immediately after birth had to be adjusted accordingly.
The prenatal surgery is related to an increased incidence of C section and prematurity as a consequence of preterm labor or premature rupture of membranes, but it has also lead to a less invasive and short stay in neonatal unit. The neonatal aspects of taking care of MMC newborn has also changed after the pre-natal repair and some aspects should be emphasized. The absence of an opened wound at the back of the newborn allows the neonatologist to resuscitate the newborn in supine position without all the worries of breaking the thin membrane. After the prenatal surgery, the defect is closed, and the temperature control of the newborn is not affected by unprotected internal structures exposed to the environment, and by the leaking cerebrospinal fluid which may increase radiant and evaporative heat loss. Furthermore, we noticed a decrease in antibiotics use and infection rates, influencing positively the length of hospital stay when stratified by gestational age at birth.
In cases of suture dehiscence, a latex free environment is maintained and the wound is taken care by a specialist skin lesion nurse team.
The post-natal care of an infant with myelomeningocele requires a multidisciplinary approach co-ordinated by the neonatology team and involves spinal rehabilitation team, neurosurgery, urology, orthopaedics, physiotherapy and social work that follows a validated protocol.
In Albert Einstein hospital (HIAE) we follow some MMC newborn that have been gone throught the surgery called SAFER (Skin-over-biocellulose for the Antenatal FEtoscopic Repair of myelomeningocele) and I am going to present some of our data and the experience of our team.

S81 - ULTRASOUND IN DELIVERY ROOM NECESSITY OR LUXURY?

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Ultrasound in delivery room although exists for many years the indications are usually for emergency situations.
In recent years clinical evaluation of d labor has emerged and indications with guidelines appeared recently.
In this presentation a new approach to ultrasound in delivery room will be presented.

S82 - FROM SCREENING CHROMOSOMAL DEFECTS TO EARLY DETECTION OF CONGENITAL ANOMALIES

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Screening for chromosomal anomalies during the first and early second trimester has become the standard in modern prenatal care world wide.
However with the advent of early detection of chromosomal de-fects by maternal Non Invasive Prenatal Testing (NIPT), there is a less need for screening examinations. Therefore we anticipate a movement towards diagnosis of fetal malformations in the early gestation.
In this presentation 28 years of experience with early anomaly diagnosis of fetal anomalies will be presented, and the feasibility of what anomalies can be detected will be discussed.

S83 - PLACENTAL TRANSFUSION IN THE DELIVERY ROOM

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During term deliveries, conventional immediate cord clamping (ICC) results in nearly 30% of feto-placental blood volume remain in the placenta, and even gradually more cord blood loss depending on the gestational age during preterm deliveries. Thus, the newborn experiences a relative hypovolemia and usually faces the need for professional assistance for extrauterine transition in the delivery room (DR). This can be prevented by placental transfusion (PT) through either up to several minutes of delayed cord clamping (DCC) or umblical cord milking (UCM). UCM can be accomplished by either cut (c-UCM) or intact cord (i-UCM).
Placental transfusion has many clinically proven benefits for term and preterm newborns. Among these, higher blood pressure, easier extrauterine transition, less need for respiratory support in the DR, higher postnatal hemoglobin and iron stores, lower rates of intraventricular hemorrhage (IVH), postnatal allogeneic transfusions, chronic lung disease (CLD), necrotizing enterocolitis (NEC), and late onset sepsis (LOS) among preterm infants, besides better neurodevelopment in both term and preterm infants are the most important favorable outcomes of PT.
Cord blood is also a very well-known source of mesenchymal and hematopioetic stem cells, as well as endothelial progenitor cells which have been used in several pre-clinical and in a limited number of clinical studies in the field of perinatal regenerative medicine. Some of the complications of extreme prematurity as CLD and brain injury are potential targets of stem cell therapy which has been reported as feasible and beneficial. Conventional approach of ICC during delivery is potentially forcing the newborns to be innocent and ignorant donors of cord blood banks or even worse waste baskets in the DR. Numerous potentially beneficial stem cells remain in the placenta with the left over feto-placental blood by ICC.
Placental transfusion is safe, it does not cause any clinically significant complications as maternal postpartum hemorrhage, increased risk of isoimmunization, polycythemia or hyperbilirubinemia in the newborn.
Although safety and numerous advantages of PT have been consistently demonstrated, implementing this practice is still a problematic issue with the existing barriers. It is time to produce and adopt a global guideline for a team-based approach for placental transfusion in the delivery room. It would be a good start up, if institutional guidelines are developed and individual scientific experience is widely and rather rapidly transferred to knowledge.

S84 - EARLY ONSET NEONATAL SEPSIS IN DEVELOPING COUNTRY

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Introduction

Early-onset sepsis (EOS) is sepsis occurring in within 48-72 h of age. The most important neonatal risk factors for sepsis are prematurity, low birth weight, maternal infection, prolonged rupture of membranes ect. Group B streptococci and Escherichia coli are the most predominant causative agents. Because of its short and long term concequences it is very important to investigate EOS in order to take appropriate measures, especially in situation of limited resources.

Aim

The aim of our study is to investigate incidence, risk factors, the most common causative agents and their susceptibility to antibiotics.

Methods

We studied one year period in NICU, Sarajevo, Bosnia and Herzegovina. Data included: gestational age, birth weight, risk factors, causative agents, their susceptibility to antibiotics, and outcome.

Results

During the studied time there were 426 hospitalized neonates, 20 of them had diagnosis of EOS (4,69%), half of them were boys. Two thirds of patients had dispenea as a leading clinical sign. Mean gestational age was 32,4 GW (range 28-41). Mean birth weight was 2413g (range 1140-4020). Eight deliveries were done by cesarian cestion (40%). Five infants were born after premature rupture of membranes (>18h). Four patients had elevated CRP in the first 12 hours after admission and four had low platelets. Every third mother received antibiotics before delivery, two children died.

Conclusion

Premature rupture of membranes was not significant indicator of EOS development, nor were elevated CRP and low platelets in the first 12 hours after admission. The dominant clinical symptom was dyspnea. Causative agents were predominantly gram negative bacteria (the most frequent Kl. pneumoniae). All gram negative agents were resistant to gentamycin. In the situation of limited resources it is extremely important to monitor clinical sings of infection and bacterial susceptibility to antibiotics in order to select appropriate therapy.

Key words

EOS, risk factors, causative agents

S85 - EPIDEMIOLOGY OF PREECLAMPSIA

Kavak S.B.

Preeclampsia is a disease known since Hypocrats. However, its pathophysiology is still unclear. The incidence is 2.6% in developed countries and 8-10% in other countries. Today, the only definitive treatment of this fatal disease is giving birth.

Preeclampsia has well-understood risk factors. Risk factors have been classified as pregnancy-specific factors, pre-existing maternal conditions, and environmental factors. Preeclampsia is more common in primigravid patients or in women with an advanced age, preexisting hypertension and/or renal disease, pre-existing diabetes or gestational hypertension, a family history of preeclampsia, obesity, insulin resistance and maternal susceptibility genes. Primipaternity as well as limited sperm exposure; pregnancy after oocyte donation, donor insemination, multifetal pregnancy; and hydatidiform mole have also been identified as risk factors for preeclampsia. On the other hand, maternal physical activity and smoking reduce the risk of preeclampsia. While modifiable risk factors can be regulated before or at the onset of pregnancy, unmodifiable risk factors such as race and genetics affect the prevalence of the disease

To date, more than 300 classification of hypertensive diseases of pregnancy has been proposed. In some patients, diagnosis of preeclampsia is difficult. Disease-specific findings may be confused with symptoms of normal pregnancy. Gestational age at the time of diagnosis affects treatment. Preeclampsia continues to be the leading cause of maternal and fetal deaths worldwide. Therefore, many of the efforts in prenatal care focuses on timely detection of preeclampsia. Biochemical, ultrasonographic and specific risk factors are used for prediction and diagnosis. Mean arterial blood pressure is another important prediction test. Tests are most commonly used in combination to improve diagnostic accuracy. Although some drugs such as low-dose aspirin and pravastatin, which have recently been used for high-risk patients, yield positive results, research is ongoing.

Until definitive treatment is found, preeclampsia will continue to be a major public health problem.

Keywords

Risk factors of preeclampsia, Maternal and fetal mortality

S86 - FETAL ANEURYSMS - WHAT TO DO

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Fetal aneurysms are extremely rare vascular anomalies, whose incidence is yet unknown. These malformations have been described in a small number of case reports.

In most cases the diagnosis is made postnatal while antenatal diagnosis, because of the pathophysiology of aneurysm itself, as well as pathophysiology of its possible complications, is made usually during the third trimester, frequently after the 34th week of gestation.

The most often among them are: the Galen vein aneurysm, Umbilical artery aneurysm, umbilical vein aneurysm, fetal abdominal aortic aneurysm.

The Galen vein aneurysm (AVG) are abnormal connections between arteries and deep draining veins of the brain which develop before birth. They are formed between 6 and 11 weeks of gestation. AVG is not associated with chromosomal abnormalities but it can demonstrate signs of volume overload as cardiomegaly and hydrops, so the neonatal prognosis usually is poor with high incidence of morbidity and mortality. Prenatal diagnosis is usually make during the third trimester and ultrasound is usually sufficient to diagnose.

Umbilical artery aneurysm is a rare condition. It is associated with high risk of fetal aneuploidy and fetal demise.

Fetal umbilical vein aneurysm is an uncommon anomaly. The rate of intrauterine fetal death is reported to be approximately 4% to 5%. The main prognostic feature associated with a poor outcome of umbilical vein aneurysm seems to be the presence of other anomalies.

When the diagnosis of fetal aneurysm is made, the patient should undergo a detailed ultrasound evaluation of the fetal anatomy, including fetal echocardiography, to exclude associated anomalies. Amniocentesis or cordocentesis should be offered when other anomalies are found. Patients should be informed about the potential or an unfavorable outcome of pregnancy and should undergo close ultrasound surveillance to assess the size of the aneurysm, as well as any evidence of thrombosis

Advances in high-resolution ultrasound combined with color Doppler and 3-dimensional rendering have contributed to an increased understanding and finding anomalies of the fetal venous circulation in recent years.

Even though they are rare, some of these anomalies are of special interest to interventional radiologists, because of potential endovascular treatment which should be proven.

S87 - 3D ULTRASOUND ASSESSMENT OF CYSTIC ANOMALIES OF THE FETAL BRAIN

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Objective

The objective of this study was to compare 2D and 3D ultrasound in the evaluation of anatomical location, size, shape of cystic anomalies of the fetal brain and their effect on adjacent structures.

Methods

All scans were performed using E8 or E10 General Electric equipment (Zipf, Austria), with a 5-8 MHz 3D transabdominal and 5-9 MHz 3D transvaginal transducer. 117 cases with cystic brain anomalies were observed and analyzed offline using computer dedicated software (4D View, GE, Austria, Zipf) and compared with 2D images.

Results

117 fetuses with cystic brain lesion were sonographically diagnosed between the years 2009 and 2019. Gestational age at the time of diagnosis ranged from 18 to 38 weeks. With the help of different 3D display modes, such as 3-orthogonal-plane display or parallel-plane display, it has become possible to obtain a detailed view of the intracranial morphology, which enables to diagnose subtle anomalies of the fetal brain, such as cystic anomalies of the fetal brain. 3D ultrasound provides precise information about the anatomical location, size, shape of the cyst as well as their effect on adjacent structures compared to 2D ultrasound. This enables an exact classification of the cystic anomalies according to anatomical origin into extraaxial, intraparenchymal or intraventricular. The differential diagnosis includes normal variants of the cavum septi pellucidi and cavum vergae, periventricular pseudocysts, vascular cystic like structures, hemorrhagic cysts and infections cysts. The most common cystic structures were subependymal cysts and choroid plexus cysts.
3D ultrasound enables the differential diagnosis between periventricular pseudocysts and periventricular leukomalacia.

Conclusion

The introduction of high–frequency transabdominal and transvaginal 3D ultrasound probes has enabled a precise evaluation of the fetal brain. Furthermore, the correct classification of brain cystic lesions allows to give optimal advice to the parents, which permits to reduce the parents' anxiety regarding the outcome of their newborn.

S88 - PRENATAL DIAGNOSIS OF SKELETAL DYSPLASIA BY ULTRASOUND

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Using a high resolution 2D and 3D vaginal probes and a high frequency, the fetal skeletal scan can be effectively performed at the end of the first and at the beginning of the second trimester. Diagnosis of bone dysplasia and abnormalities of the musculoskeletal system is a very difficult task. It is crucial to study the entire fetus, extremities, spine, skull and chest.
There are about 200 bone dysplasias, the most of skeletal dysplasias have a low risk of connection with chromosomal aberrations, except for a small risk for trisomy 18 and 13 and neuroarthrogriposa.
The medical examination consists of:
1. Evaluation of all three bone segments: distal, proximal and middle segment;
2. Evaluation of long bone mineralization, measurement of a long bones.This is especially important for categorization of bone dysplasia;
3. Evaluation of fetal position and movement;
4. Estimation of the small bones of the hand and foot
5. Estimation of the configuration and mineralization of the skull bones, extremities, vertebral column and chest.
In addition to the above systematic examination, it is necessary to have family history data on the existence of a musculoskeletal disorder in any family member, which is important information because disorders of the musculoskeletal system have typical patterns of inheritance.
The incidence of skeletal dysplasia is 3-4 per 10,000 and perinatal infant mortality is 9 per 1,000.
It is difficult to estimate the incidence of individual skeletal dysplasias, as there are some entities that mimic skeletal dysplasia including dysmorphic and intrauterine growth restriction.
Many of these dysplasias are lethal (imposible to survive). The diagnosis is based on an anatomically morphological study assessing the characteristics of the enchondral ossification line or DNA assessment. Skeletal dysplasia is a complex group of anomalies with different features and prognosis.
According to the international classification they are divided into five groups:
1.Osteochondrodysplasia (disorder of growth and development of bone or cartilage);
2. Dystoses (reduction of individual bones or their curvature);
3. Idiopathic osteolysis (disorders associated with multifocal bone resorption);
4. Skeletal disorders associated with chromosomal aberrations;
5.Primary metabolic diseases with associated skeletal disorders.
Most of these skeletal anomalies can be detected and diagnosed using ultrasound during inuteruterine life.

Keywords:
Sceletal dysplasia, pernatal dignostic, 2D and 3D ultrasound.

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S89 - MORBIDLY ADHERENT PLACENTATION AND ANTENATAL DIAGNOSIS BY FIRST TRIMESTER ULTRASOUND SCREENING

Ladella S.
FACOG

Introduction

Morbidly adherent placenta, a term used to describe abnormal placental invasion and implantation into the myometrium, includes the spectrum of abnormal placentation, categorized into accreta, increta, and percreta. This is associated with significant maternal morbidity and mortality due to life-threatening risk of hemorrhage. The incidence of abnormal placentation has increased in the past 4 decades due to higher rates of cesarean deliveries, uterine surgeries, endometrial curettages and other maternal comorbidities. Morbidly adherent placenta is rarely diagnosed by prenatal ultrasonography in the first trimester.

We report a case of morbidly adherent placenta diagnosed by first trimester ultrasonography, which resulted in spontaneous uterine rupture and intrauterine fetal demise at 15 weeks gestation.

Case Presentation

A 33-year-old patient with history of two prior cesarean sections presented with recurrent vaginal bleeding in the first trimester. The patient was diagnosed with subchorionic hematoma by ultrasound at 9 weeks gestation. A nuchal translucency screening ultrasound performed at 12 weeks gestation diagnosed placenta previa with abnormal placental implantation that was suggestive of placenta accreta.

Ultrasound findings noted an abnormal placental interface with the uterine wall identified by multiple venous lakes, increased vascularity with vessels invading the myometrium from the placenta and an ill-defined demarcation between the placental and uterine wall. The patient continued to have intermittent vaginal bleeding and a follow up ultrasonography at 15 weeks diagnosed intrauterine fetal demise with a large subchorionic hematoma. The patient underwent total abdominal hysterectomy and bilateral salpingectomy with initiation of massive blood transfusion protocol due to significant intra-abdominal hemorrhage from the placental site. Intraoperatively, the patient was diagnosed with spontaneous uterine rupture with placenta protruding out of the ruptured uterus. The surgical pathology report confirmed placenta percreta. The patient had an uneventful postoperative recovery period.

Discussion

Our case report highlights the importance of early recognition and diagnosis of abnormal placentation by prenatal ultrasonography in the first trimester. Our case and other case studies report similar first trimester ultrasound findings suggestive of abnormal placentation such as low placenta implantation site, unclear retro-placental space, and hypervascularity of the dilated lacunar spaces. First trimester screening ultrasound protocols are lacking in evaluation, awareness and diagnosis of abnormal placentation for the high-risk patients.

Literature review confirmed that morbidly adherent placentation is rarely detected and a diagnostic challenge in the first trimester. The first trimester ultrasound diagnostic sensitivity of 41% and specificity of 88% is lower when compared to second and third trimester. The second trimester ultrasound diagnosis has an improved sensitivity of 60% and specificity of 83.5% with a greater sensitivity of 71.4% and specificity of 88.5% in the third trimester.

Conclusion

This case warrants further research and training in improving first trimester ultrasound detection rates of abnormal placentation in high risk patients. Early detection is essential in the management of morbidly adherent placenta by equipping the obstetrical team with better preparedness and thus reduce or prevent significant life threatening adverse maternal and fetal outcomes.

S90 - ABNORMAL COILING OF THE UMBILICAL CORD DIAGNOSED PRENATALLY AS A MARKER FOR ADVERSE PREGNANCY OUTCOMES

Ladella S.
FACOG

Introduction

The umbilical cord plays a vital link between the fetus and the placenta for survival, growth and development of the fetus. The normal configuration comprises of single umbilical vein that carries oxygenated blood to the fetus and two umbilical arteries that remove deoxygenated blood from the fetus. A characteristic gross feature of the umbilical cord is the helical coiling pattern that develops during the second and third trimesters.

Postnatal studies of abnormal umbilical cord coiling have shown correlation with adverse pregnancy outcomes but limited studies have focused on identification of abnormal coiling in utero to predict and prevent adverse outcomes in pregnancy.

Our study looked at antenatal diagnosis of abnormal umbilical cord coiling index by prenatal ultrasound screening and the association with adverse pregnancy outcomes with the goal to increase awareness and close surveillance for pregnancies complicated with abnormal umbilical cord coiling index.

Methods

A retrospective cohort study was performed on patients seen at high risk clinic, affiliated with Central California Faculty Medical Group, UCSF Fresno, CA. Patients with abnormal antenatal umbilical coiling index (aUCI < 0.17 or > 0.41) diagnosed prenatally during study period 07/2017 to 09/2018, were compared to patients with normal coiling index. The aUCI was calculated as the reciprocal value of the mean pitch of one complete coil. Patient data was abstracted from Viewpoint ultrasound reporting system, and electronic medical records. Adverse outcomes such as polyhydramnios and intrauterine growth restriction (IUGR) were excluded if complicated with maternal diabetes or hypertension.

Results

During the study period, 32 patients with abnormal aUCI were compared with 65 patients with normal aUCI. Twenty-three patients had hypercoiled cord (aUCI > 0.41) and 9 patients had hypocoiled cord (< 0.17). The percentage of IUGR was higher in the abnormal aUCI group (18.8%) compared to the normal aUCI group (6.2%) with borderline significance ($p=0.05$). Of the 12 patients who had polyhydramnios in the abnormal aUCI group, 9 were included and 3 excluded due to underlying gestational diabetes. The percentage of polyhydramnios was significantly higher in the abnormal aUCI group (28.1%) compared to the normal aUCI group (7.7%) ($p< 0.05$).

Conclusion

In our pilot study, we found a statistically significant association of adverse pregnancy outcomes in patients with antenatal ultrasound diagnosis of abnormal umbilical coiling index. We recommend routine second trimester ultrasound screening of all patients for detection of abnormal umbilical coiling. Early diagnosis can help reduce adverse perinatal outcomes by increasing antenatal surveillance and monitoring of these pregnancies. Ongoing future studies will focus on larger sample size over longer duration, neonatal outcomes and validating current findings.

S91 - EPIDEMIOLOGY OF ANEMIA IN PREGNANCY IN TURKEY AND PROPER PROPHYLAXIS

Göncü Ayhan S.

Anemia in pregnancy is a common health problem with a 42% worldwide prevalence. World Health Association (WHO) placed Turkey in the severe group for pregnant women, with an anemia prevalence of 40%. National epidemiologic study on the prevalence of anemia in Turkey does not exist but some regional studies were published. In these studies, the reported prevalence of anemia during pregnancy was 29.4% in Afyon, 42.4% in Elazığ, 27.1% in Malatya, and 20% in Ankara. The different rates can be explained with demographic, cultural, and socio-economic factors. Iron deficiency is the most common cause of anemia with a ratio of 50%. Complete blood count and serum ferritin levels are adequate for diagnosis. A serum ferritin concentration <30 μg/L together with an Hb concentration <11 g/dL during the first trimester, <10.5 g/dL during the second trimester, and <11 g/dL during the third trimester are diagnostic for anemia during pregnancy. Iron prophylaxis is given to pregnant women to meet the increased iron demand. WHO recommends routine supplementation of all pregnant women with a single daily dose of 60 mg iron for six months during pregnancy. In Turkey, routine iron supplementation to all pregnant women has been advised since 2005. Pregnant women should attend antenatal clinics in the first trimester for the best management of anemia. Oral iron preparations can be used throughout pregnancy and should be given as first-line therapy. Iron2+ salts are the most frequently used oral iron preparations for the treatment of anemia. They are administered either in tablet form or as solutions. Iron3+ salts have very low bioavailability and not indicated for oral administration. Iron3+ polymaltose complex dextriferron is one of the few available oral Iron3+ compounds and belongs to the class of so-called slow-release iron preparations. The advantages of this iron preparation are its less side-effect profile compared with Iron2+ salts as a result of the slow release, and it can be taken with meals. IV iron therapy is recommended during 2nd and 3rd trimesters, but it cannot be used during first trimester because of missing safety data of first-trimester supplementation. IV iron should be given to women who cannot tolerate oral iron, those who have severe anemia later in the pregnancy; those for whom oral iron does not effectively increase the hemoglobin and/or ferritin levels, and those with anatomic abnormalities such as history of bariatric surgery or other conditions that interfere with oral iron absorption like inflammatory bowel disease.

S92 - NEONATAL MANAGEMENT AND LONG-TERM PROGNOSIS OF IUGR FETUS

Yiğit S.

Intrauterine growth retardation (IUGR) is defined as a decreased rate of fetal growth than expected normal rate for gestational age, based on the race and gender of fetus. Small for gestational age (SGA) and IUGR have been used interchangeably, however there is a difference. SGA is a term used for neonates whose birth weight is less than the 10th percentile for that specific gestational age. IUGR indicates in utero growth restriction of a fetus irrespective of their birth weight percentile. An infant with a birth weight between 10-90 percentiles can be IUGR and demonstrate signs of fetal malnutrition. Problems are more commonly observed in IUGR / SGA babies compared to on IUGR/ AGA peers include need for neonatal intensive care, perinatal asphyxia, meconium aspiration, pulmonary hypertension, hypoglycemia, polycythemia, indirect hyperbilirubinemia, sepsis, convulsions, hypotension, renal dysfunction, necrotizing enterocolitis and need for mechanical ventilation in early postpartum period. Mortality risk is also significantly increased in those babies. Neurodevelopment, vision and hearing impairment, abnormal bone development, diabetes, obesity, hypertension, dyslipidemia, increased risk of cardiovascular diseases and reproductive problems are common long term adverse outcomes.

At birth a skilled team should be present to resuscitate the IUGR infant since they may not tolerate labor stress upon chronic intrauterine hypoxia. Thermal regulation should be monitored because of decreased brown fat deposition in utero. Hypothermia should be prevented since it will result in increased metabolic rate and augment hypoxia. Respiratory and cardiovascular monitorization are necessary for increased rate of respiratory distress due to meconium aspiration, pulmonary hypertension or respiratory distress syndrome. Close blood glucose monitoring is warranted because hypoglycemia or hyperglycemia are often. Intravenous fluids may be necessary to maintain blood glucose after birth in severe cases, formula feeding is not recommended to prevent hypoglycemia in this group due to increased risk of necrotizing enterocolitis. Physical examination usually reveals findings of malnutrition. Genetic disorders and TORCH infections should be investigated in infants with IUGR beginning early in gestation. Anthropometric measurements may give a hint for prognosis. Symmetric IUGR (all growth parameters are effected) indicates high mortality and morbidity while asymmetric IUGR (head sparing) indicates better prognosis. Clinical Assessment of Nutrition (CAN) score can give information about the degree of fetal malnutrition. As the birth weight percentile decreases, the frequency of morbidity and mortality increases. However there is no certain cut off point for degree of fetal malnutrition or percentile to predict morbidity or mortality in IUGR/SGA infants. SGA infants are a heterogeneous group with a birth weights below ten percentile. In a study we aimed to determine a specific risk percentile for common morbidities of SGA infants. Sepsis, NEC, hypotension, need for transfusion and mechanical ventilation were found more common in SGA infants below 5 percentile.

S93 - DEMOGRAPHIC TRENDS IN BOSNIA AND HERZEGOVINA – CURRENT STATUS AND PROSPECTS

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The 2013 census data analysis has shown that Bosnia and Herzegovina has permanent population of 3 531 159. Population of Federation of Bosnia and Herzegovina is 2 219 220, the RS 1 228 423, and Brčko District 83,516. Negative difference in total population according to the census from 1991 and 2013 is 845, 874, representing relative decrease of 19.3 %. According to demographic projections of the United Nations (medium option), it is expected that by the year of 2050, population of Bosnia and Herzegovina, compared to 2015 will have decreased by 20 percent (UN, 2015).
From 2013 to 2016, by looking at only negative difference between live birth and dead born babies we lost population of 23,000. According to the data of the Union for sustainable return and integration of BiH, more than 150,000 left Bosnia and Herzegovina in the period from 2013 to 2017. According to demographic projections of the United Nations (medium option), it is expected that by the year of 2050, population of Bosnia and Herzegovina, compared to 2015 will have decreased by 20 percent (UN, 2015).
Representative example of population policy in developed European countries such as Sweden. It is known for its specific «Scandinavian» approach to population policy, which is also known as family policy, which is directly under welfare policy within the welfare state. Belarus and Ukraine had very bad demographic status as in 2004 the total fertility rate in Belarus was only 1.23 children per woman, and 1.21 in Ukraine, the indicators placing these countries on the bottom of the world list. Financial support allocated for first child is 3,259 dollars, 6, 441 dollars for the second child, while the allowance for the third or more children is up to the amount of 13,067 dollars. Apart from this, the state provides housing for families with five and more children, while families with three or more children, also receive subsidies for the water, electricity, gas and phone bills by 50 percent. Women with 5 children, along with 1,500 dollars, get a title of ‘national hero’.
What can we do? What is demographic potential for increase of live born babies in Bosnia and Herzegovina?
Conduct research on main reasons for women not choosing to have another child.
Leading active pro-natalist policy with achievable expected results. Policy enabling good living and working conditions for return of youth whose parents (or their ancestors) who fled or emigrated in circumstances of bad economic situation and frequent wars and conflicts in the past two hundred years. Example of China (bamboo network).

Key words
population, demographic potential, birth rate.

J. Perinat. Med. 2019; 47 (Suppl) ● Copyright © by Walter de Gruyter ● Berlin ● Boston. DOI 10.1515/jpm-2019-2500

S94 - ANTENATAL DETECTION OF A SMALL-FOR-GESTATIONAL-AGE FETUS AND CONSEQUENCES FOR OBSTETRIC MANAGEMENT AND NEONATAL OUTCOMES

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Objective

To assess the benefit of the screening protocol for small-for-gestational-age (SGA) neonates and to evaluate the benefit of antenatal diagnosis of fetal growth restriction (FGR) on obstetric management and neonatal outcome

Method

We performed an observational study of a historical cohort of 269.623 structurally and chromosomally normal singletons born in Slovenia from 2002 to 2017. Screening for FGR was performed by the measurement of fundal height starting at 24th gestational week in normal pregnancies and by serial US biometry in high risk pregnancies. We estimated the prevalence of SGA neonates, sensitivity, specificity, positive (PPV) and negative predictive value (NPV), and the Matthews Correlation Coefficient (MCC). We compared 3388 SGA neonates (birthweight < 10th percentile), antenatally suspected of FGR (true positive), 3606 non-SGA neonates, suspected of FGR (false positive), 15 139 SGA neonates without suspicion of FGR (false negative) and 247 490 non-SGA neonates without suspicion of FGR (true negative). Multivariable analyses were performed adjusted for relevant maternal and neonatal characteristics to evaluate the benefit of antenatal diagnosis of FGR for an obstetrical and neonatal outcome.

Results

The prevalence of SGA neonates was 6.87%. Sensitivity and specificity of the screening protocol was 18.29 % and 98.56%, respectively, with PPV of 48.44% and NPV of 94.24 %. The MCC showed low positive correlation between the screening protocol and diagnosis of SGA (0.27). The results of the comparisons of the obstetrical and neonatal outcomes are presented in Figure 1. We found no significant differences in neonatal outcomes between suspected and unsuspected SGA neonates, despite a significantly higher rate of cesarean deliveries and preterm births in suspected SGA neonates.

Conclusion

Screening for FGR by the measurement of fundal height starting at 24th gestational week in normal pregnancies and by serial US biometry in high risk pregnancies is not beneficial neither for diagnosis of SGA neonates nor for improving their neonatal outcome.

S95 - SCREENING AND PREVENTION OF FOETAL GROWTH RESCTRICTION

Frusca T.

Effective primary prevention of diseases can be obtained only in cases where characteristics of population or biochemical and biophysical markers can differentiate patients who will be affected by the desease from patients who will not, that is in case of FGR being able to predict high risk patients early in the first trimester. This is quite a different aim from the prediction/identification of IUGR. in the third trimester

Prediction /identification of IUGR in the third trimester relay on ultrasound evaluation of foetal growth, either EFBW or CA, and on the ability to differentiate IUGR from constitutionally SGA.

As regard to ultrasound measurements we have to underline the problems given by the use of different formula and different charts, for example between 2.6 and 23.6% of measurements would be classified as abnormal using three different charts of foetal biometry that are commonly used.

Recently a meta analysis by Caradeux (AJOG 2019) has reviewed 21 studies on more than 80.00 patients with ultrasound measurements in the third trimester and has reached the conclusion that:

1. Pooled data on the prediction of birthweight <10° centile showed observed sensitivities of AC and EFW <10° of 38% and 35% respectively
2. The sensitivity of EFW <10° was better when aimed to FGR than to SGA.
3. Meta-regression analysis showed a significant increase in sensitivity when ultrasound evaluation was performed later in pregnancy

Different management is due in case of real intrauterine growth restriction compared to constitutionally small for gestational age. This underlines the role of a differential diagnosis.

A recent Delphi procedure has pointed out the role of fetal Doppler velocimetry in order to correctly identify real growth restriction. (Gordijn UOG 2016).

Identification of population at risk in order to give primary prevention relay on clinical characteristics and on biochemical and biophysical markers. For this reason it is very important to investigate patients at high risk such as with previous intrauterine deaths , previous severe IUGR , previous thrombotic events that could be related to rare conditions , such as antiphospholipid syndrome or specific autoimmune diseases or chronic conditions in which specific treatment (i.e. the use of heparin aspirin clorochine or others) can have an significant impact on the outcome of pregnancy .

In general population however neither biophysical nor biochemical markers are very effective in identification of population at risk of isolated IUGR at time when primary prevention could be used, in the first trimester .

The best algorithm for identification of population at risk incorporate uterine artery Doppler velocimetry and biochemical markers not commonly used (ADAMS 13 ,PP13,PlGF), detecting 73% of cases of earli SGA (Karagiannis 2011

Prevention of IUGR is effective in case where growth restriction is associated to preeclampsia or in case of severe early foetal growth restriction , while it is not proven to be effective in preventing late growth restriction . The same kind of conclusion are related to the use of heparin , as its role has been proven in cases of severe foetal growth restriction related to placental vascular diseases. Despite intensive research on NO donors and on its potential vasoprotective role , there is lack of evidence based data on its role for prevention of complications such as preeclampsia and IUGR. Recently gene therapy has been advocated for treatment and prevention of IUGR , experimental studies with adenoviral VEGF gene therapy in a sheep model has given interesting results , but as far as now there is no clinical application.

S96 - EARLY AND LATE IUGR

Frusca T.

The definition of Early and late IUGR refers to very different conditions as outlined by the Delphi procedure adopted and published on UOG2016 by Godrijn.
According to this paper, reporting the opinion of experts Late IUGR is defined when AC or AFW are below 3rd centile after 32 weeks or when at least two of the following criteria re matched: AC/EFW <10 centile, AC/EFW crossing >2 quartile in fetal growth charts, CPR <5centile or Umbilical artery >95 centile.
No consensus in this discussion with experts was reached about the role of abnormal uterine artery velocimetry in the definition of growth restriction.
Recently the role of umbilical vein blood velocimetry or flow has been reported as a useful parameter to discriminate GR from SGA and to identity cases with a poor perinatal prognosis (Rizzo UOG2019)
The role of Doppler in the differential diagnosis between SGA (consitutionally small babies) and late Foetal growth restriction is well recognized as suggested by many authors (Figueras UOG2014). A randomized trial is ongoing (TRUFLE2) about the management of this condition,
with particular interest in when and how to deliver this babies according to presence of cerebral redistribution as defined by abnormal CPR (cerebroplacental ratio) or U/C (umbilical cerebral ratio) .
Early IUGR is frequently associated with placental vasculopathy and with preeclampsia . the definition relay not only on the onset of this condition before 32 w of gestation but mainly on the presence of elevated umbilical artery PI .
He TUFFLE 1 randomized study gave answers to the role of computerized CTG and Ductus venosus velocimetry in the management of such condition, both representing essential tools in the decision of timing of delivery in early severe GR.(Lees and Truffle group UOG 2013, Lancet 2015, UOG2017, Frusca AJOG 2018)

S97 - SEAMLESS INTEGRATION OF FIRST TRIMESTER SCAN, SERUM BIOCHEMICAL MARKERS, AND NONINVASIVE PRENATAL TESTING (NIPT)

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Screening strategies for fetal aneuploidies are based on individual risk calculated from maternal age and nuchal translucency (NT) measurement and/or maternal serum markers and/or other ultrasound markers in the first trimester (defined by the conventional crown–rump length range of 45–84 mm). Following such screening, women can be offered a choice, according to their calculated individual risk, of having no further testing, noninvasive prenatal testing (NIPT or DNA-based prenatal screening), or invasive testing. Cut-offs, defining two (low/high risk) or three (low/intermediate/high risk) groups, should be defined on a local/national basis and will be affected by public health priorities and available resources. Offering NIPT should always be balanced with the potential and risk of conventional karyotyping, with or without microarray analysis, following invasive sampling. More importantly, the role of NIPT as an alternative to standard invasive testing in women considered to be at very high risk after combined screening (>1:10) but with no ultrasound anomaly should be evaluated in prospective studies. Expert opinion currently suggests that NIPT should not replace routinely invasive testing in this group, based on the fact that, in this population, only 70% of aneuploidies are trisomy 21, 18 or 13, and that chromosomal microarray analysis, if offered, is able to detect a large number of additional anomalies.

S98 - THREE-DIMENSIONAL ULTRASOUND IMAGING IN THE DIAGNOSIS OF ECTOPIC PREGNANCY

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Morbidity and mortality of ectopic pregnancy(EP) have been drastically reduced since the first successful surgical removal of a Fallopian tube ectopic pregnancy in 1884 by R L Tait. Diagnosis and treatment were revolutionized by the introduction of quantitative serum beta HCG essay, high frequency transvaginal ultrasound (TVS), laparoscopic surgery, and interventional radiology with uterine artery embolization. In this chapter, the focus will be on transvaginal sonographic diagnosis of ectopic pregnancy in various locations. With 2 D color Doppler TVS having established itself as state-of-the-art diagnostic tool for EP, it will be discussed whether the additional use of 3 dimensional TVS facilitates the diagnosis of EP.

Keywords
Ectopic pregnancy, 3 D ultrasound, tomographic ultrasound imaging, color/power Doppler

S99 - SECOND TRIMESTER FETAL GROWTH RESTRICTION: ETIOLOGY AND MANAGEMENT.

De Robertis V.

Aim

Second trimester fetal growth restriction (FGR) is a rare condition. The detection of these very early small fetuses is clinically relevant because this condition is associated with significant perinatal morbidity and mortality. The aim of this talk is to analyze the most frequent etiologies and to sort out the obstetric management of pregnancies affected by FGR onset before 24 weeks' gestation.

Discussion

Second trimester FGR occurs between 17 and 24 weeks of gestation. This anomaly could be suspected at the time of second trimester scan by fetal biometry as abdominal circumference (AC) is <10th percentile for gestational age. The first step in the diagnostic algorithm of FGR is to establish the accurate dating of pregnancy. In cases where the fetus appears to be small gestational age (SGA), an etiological diagnosis should be attempted. The causes of FGR are fetal, maternal, environmental and placental. Firstly a detailed US scan should be performed to exclude major congenital anomalies; fetal and maternal Doppler Velocimetry should be evaluated to identify a placental etiology of FGR. In absence of Doppler abnormalities, genetic causes should be excluded offering fetal karyotype supplemented by CMA. Moreover infectious workup, including serology for maternal extended TORCH may be considered. When FGR is suspected or identified, an accurate US and Doppler follow-up is worth in order to identify features of fetal acidosis- hypoxemia, which could lead to permanent fetal neurological damage or stillbirth.

S100 - IUGR, METABOLIC SYNDROME AND STRATEGIES FOR INTERVENTION

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Intrauterine growth restriction (IUGR) refers to the failure of the fetus to achieve its designated growth potential because of anatomical and/or functional disorders or diseases in the fetal–placental–maternal unit. Size at birth depends on the fetus's trajectory of growth, and the maternoplacental capacity to supply sufficient nutrients to maintain this trajectory. IUGR is diagnosed when a fetus does not reach its growth potential, complicates 7–10% of all pregnancies and is related with increased risk for adverse perinatal outcome and long-term fetal programming in the form of cardiovascular disease, metabolic syndrome(MS)(obesity, diabetes, fatty liver, dyslipidemia) and neurological deficits as David Barker et al have described since 1989. MS has become the most important health epidemic of the 21st century.
When fetal uptake of glucose, O2 and amino acids is decreased through maternal circulation, the fetus is adapted to undernutrition by mechanisms responsible for the energy and glucose metabolism, such as enhanced peripheral insulin sensitivity for glucose utilization, increased hepatic glucose production, lowered insulin sensitivity for protein synthesis in muscles, and impaired pancreatic development.
This provides the energy for cellular oxidative metabolism, but in the same time reduces the demand for amino acids for growth and anabolic hormone production and increases glucose production in the liver to maintain glucose supply to vital organs. These adaptations maintain the energy-dependent basal metabolic functions at the expense of body growth and lead to asymmetrical growth restriction of the fetus with abnormal growth of various organ and vascular development. Lean mass, lipid stores and number/size of skeletal muscle cells is decreased and subcutaneous tissues exhibit the most pronounced growth restriction, in favor of the brain growth: the "thrifty phenotype"
Variations in the processes of development through epigenetic modifications affect gene expression without alterations in DNA and program the function of vital systems linked to disease. If these adaptive modifications persist, they have the potential to promote energy absorption beyond metabolic capability thereby causing insulin resistance, obesity and T2D in adulthood. The accelerated postnatal nutrition and growth, -'catch-up' growth-, is one of the most important triggers of hypertension and cardiovascular complications in adult life.
Several interventions, nutritional and drug-related, have been proposed; the most of them are in experimental models and has shown that the above changes are correctable if the intervention is introduced very early in life. Replacing nutrients, oxygen, anabolic hormones (GH, IGF 1) and growth factors that promote β-cell development, insulin secretion and energy and net protein accretion in mother and fetus, improve the growth. NO donors (Larginine, sildenafil) have been used to increase uterine blood flow. Exendin 4 (Ex-4), a glucagon-like peptide (GLP)-1 analog, reverses the adverse consequences and prevents the development of diabetes in adulthood. PPAR and LXR are nuclear receptors which control the expression of genes involved in lipid metabolism and inflammation. However, these therapies due to the poor efficacy and potentially deleterious effects, are not currently recommended for human intervention.
Dietary intervention strategies appear promising. Malnutrition and preeclampsia increase oxidative stress and are linked to IUGR with significantly lower antioxidants in offspring. Vitamins C and E, are free radical scavengers and prevent lipid peroxidation. Folate is necessary for methylation of biochemical reactions, with important role in cell growth and replication, DNA repair, oxidative stress. Resveratrol and Melatonin both have antioxidant

activities, are safe without severe adverse outcomes. Omega-3 Fatty Acids are important for fetal growth, prevention of coronary heart disease and hypertension.
In conclusion based on David Barkers “life history theory’’ that chronic diseases originate through developmental plasticity in response to malnutrition during fetal life and infancy and the Hippocratic dictum that preventing is better than cure “It is time to move away from simply low birth weight, to broader considerations of maternal well-being and achieving the optimal environment for the fetus to maximize its potential for a full and healthy life” (WHO recommendation)

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S101- FETAL ANOMALIES IN THE FIRST TRIMESTER

Zalel Y.

With improvement of the US equipment and the physician skills, along with the desire to earlier prenatal diagnosis, the world is moving towards early anomaly scan, i.e., detecting fetal anomalies as early as 11-14 weeks gestation.
However, the accuracy of detecting these anomalies varies according to the anomaly itself.
We present, herein, as a modification of Singelaky's study, anomalies that are almost always (>90%) detected, detected between 10-90% of cases and virtually never (<2% of cases) detected in the first trimester.

S102 - RECENT PREVENTIVE STRATEGIES FOR NOSOCOMIAL INFECTIONS IN THE NICU: TO DREAM THE IMPOSSIBLE DREAM?

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Nosocomial infection is a term frequently used interchangeably with hospital acquired or health care associated infection (HAI) which was not present or incubating at the time of admission to a hospital or other health care facility. These infections have serious health and financial consequences representing one of the leading causes of neonatal mortality and morbidity. In contrast to improvements in the quality of neonatal care, nosocomial sepsis is still a major problem in the NICUs all over the world. Although significant advances have been made in standardizing the definition of HAIs and developing evidence-based guidelines for prevention, there are still inconsistencies regarding the neonatal population which leads to gaps in data reporting, hence in developing preventive strategies. The neonatal patients are one of the most susceptible population given their need for many invasive procedures and support devices (ventilators, central lines, urinary catheters), along with the use of broad-spectrum antibiotics, steroids and TPN. The improved survival of these vulnerable babies necessitating prolonged support and NICU stay increase the risk of nosocomial infections (1,2,3).

The available preventive strategies aim at reducing risk factors and enhancing host defence systems. Hand hygiene is still the most important but simple and inexpensive intervention. Several studies have shown that strict adherence to hand washing practices effectively reduces nosocomial infection rates (3,4). Early enteral feeding with breast milk is the other key approach. Beneficial effects are attributed to the presence of bioactive proteins with anti-infective properties, mucosal trophic effect on intestinal epithelium, contribution to immune maturation and formation of a healthy intestinal colonization (1,5). Failure of single interventions to prevent nosocomial infections forms the rationale of implementing “bundles” of care which incorporate multiple interventions together and target the most frequent neonatal nosocomial infections which are Central Line-Associated Bloodstream Infection (CLABSI) and Ventilator-Associated Pneumonia (VAP). A significant benefit of preventive bundles has been shown in this context (2,6). More evidence is needed for the use of probiotics, lactoferrin, innate immune stimulants and stem cells (5).

In spite of all the potential barriers and difficulties in prevention, nosocomial infections should be regarded as unacceptable and a “zero-tolerance” point of view rather than “impossible” should be adopted in all NICUs.

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S103 - HOW TO AVOID HYSTERECTOMY IN CASES OF SERIOUS POSTPARTUM HEMORRHAGES?

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Massive postpartum hemorrhage is associated with significant maternal morbidity and mortality. Postpartum hemorrhage was responsible for more than 80,000 deaths worldwide in 2015. The definition should be include both blood loss and clinical signs of cardiovascular changes (fall in hematocrit, hypovolemia etc.). Uterine atony is responsible for 90% of all postpartum hemorrhages, trauma is responsible for about 7%, and coagulation failure for 3%.
Hysterectomy is life-saving and can be warranted earlier where patient hemodynamically unstable or there is uncontrollable bleeding despite other medical surgical measures. Hysterectomy being radical procedure is associated with loss of child bearing potential and psychological problems is the last option.
Although the description of the ligation of hypogastric arteries can be found in textbooks, few gynecologists have accrued experience performing the procedure. Hypogastric ligation doesnot appear to compromise the patients' subsequent fertility.
Indications of bilateral ligation of the hypogastric arteries:

1. Life-threatening pelvic hemorrhage
2. Prophylactic reduction of pelvic blood flow
3. Patients refusing blood transfusion
4. Preservation of uterus.

In our tertiary referral centre no maternal deaths due to hemorrhage have occurred during the past three decades and many uteruses could have been saved using ligation of hypogastric arteries controlling profuse pelvic hemorrhage.
It is essential to familiarize medical staff with the guidelines including the ligation of hypogastric arteries for the management of postpartum hemorrhage through training.

S104 - SETTING UP THE ULTRASOUND MACHINE FOR FETAL HEART EXAMINATION

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Although the examination of the fetal heart is part of the standard fetal scan, fetal heart examination is still considered a challenge even for experienced physicians. The procedure is difficult to perform due to small size of the fetal heart and the prenatal circulation particularities regarding the physiology and anatomy. On the other hand, many conditions such as abdominal or uterine scars, maternal obesity, myomas, fetal position, oligohydramnios may impair the visibility of the fetal heart.

Fetal heart examination is commonly performed at 18 to 22 gestational weeks. In some settings, the majority of major CHD may even be recognized during the first trimester anatomical examination of the fetus. An early diagnosis may especially be needed in high-risk pregnancies such as when increased nuchal translucency thickness is identified.

Fetal heart examination should be conducted with real-time scanners, using a transabdominal and/or transvaginal approach. The choice of transducer frequency is a trade-off between beam penetration and resolution. With modern equipment, 3- to 5-MHz abdominal transducers allow sufficient penetration in most patients while providing adequate resolution. A lower-frequency transducer (2–2.25 MHz) may be needed to provide adequate penetration for abdominal imaging in an obese patient. During early pregnancy, a 5-MHz abdominal transducer or a 5- to 10-MHz or higher vaginal transducer may provide superior resolution while still allowing adequate penetration.

For a satisfactory cardiac examination, it is imperative to obtain adequate visualisation of the heart. Optimal views of the fetal heart are obtained when the cardiac apex is orientated toward the anterior maternal wall. If the fetal position is unsuitable for satisfactory visualisation of the heart anatomy, then it is necessary to await for spontaneous fetal movements, to undertake such measures as getting the mother to fill or empty her bladder, rotating or tilting her abdomen to change the fetal position.

Following getting the optimal view of the fetal heart, the examiner may further optimize the image by appropriate adjustment of technical settings, such as image magnification, signal gain, acoustic focus, frequency selection, harmonic imaging, and Doppler settings. Images should be magnified until the heart fills at least a third to half of the display screen. System settings should achieve a high frame rate of at least 50 Hz to overcome the technical difficulty created by the small size and rapid movement of the fetal cardiac muscle. Increased contrast, high resolution and low persistence are the three mainstays of fetal heart examinations. Usage of a single acoustic focal zone and a relatively narrow image field should also be emphasized. The cine-loop feature should also be used to assist the real-time evaluation of normal cardiac structures.

Adequate documentation is another essential feature for high-quality fetal cardiac examination. The standard views of the fetal heart both normal and abnormal should be stored as images or digital videoclips routinely. Images should be labelled with the patient identification and the examination date.

S105 - DIAGNOSIS OF ISOMERISM

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Heterotaxy syndrome (HS) or isomerism is a rare, complex disorder involving structural cardiac defects in combination with symmetrical development of abdominal viscera that are normally asymmetrical organs. In most cases, HS occurs sporadically, with an incidence of 1 in 10 000 - 40 000 live births. Preexisting maternal diabetes is the most commonly noted maternal condition associated with HS. The nomenclature commonly seen in the literature for isolating the subtypes of HS refers to the presence of extra splenic tissue (polysplenia) which is bilateral left sidedness, also called left isomerism or absence of the spleen (asplenia) which is bilateral right sidedness or right isomerism.

Patients with left isomerism tend to have fewer complex heart anomalies, allowing for a better prognosis, in the absence of heart block. The occurrence of complete heart block has been reported in 50% of fetuses with left isomerism. Spontaneous fetal demise occurs more often in fetuses with left isomerism, due to heart failure and the hydrops diagnosed in the first trimester. In contrast, intrauterine demise in the patient with right isomerism occurs with less frequency; however, the overall antenatal outcome for a patient with right isomerism can be much poorer than a fetus with left isomerism.

The associated findings with left isomerism include polysplenia, bilateral morphologic left atrial appendages, bilateral bilobed lungs, interruption of the IVC with azygos continuation into the SVC, midline symmetric liver, stomach on either right or left side of the abdomen, and absence of the gallbladder. Typical findings that accompany right isomerism include asplenia, bilateral morphologic right atrial appendages, bilateral trilobed lungs, bilateral SVCs, midline liver, and right- or left-sided gallbladder and stomach. In addition, most patients with right isomerism will have multiple and complex heart anomalies. Some examples include absent coronary sinus, common atrium, ventricular septal defect, transposition of the great vessels, total anomalous pulmonary venous connection to a systemic vein, or pulmonary artery stenosis/atresia.

An inconsistency between the location of the fetal stomach and cardiac apex can be the first indication that HS may be present. Other common sonographic findings in left isomerism, include the presence of multiple splenic structures (polysplenia), morphologic left atrial appendages (hook-shaped,narrow-stalk) bilaterally, IVC interruption with azygous continuation into the SVC, symmetric midline liver, stomach and absent gallbladder. Conversely, frequent sonographic findings of right isomerism include absence of the spleen, morphologic right atrial appendages bilaterally (pyramidal-shaped, broad-based), bilateral superior vena cavae, midline liver, and stomach and/or gallbladder on the right or left side of the abdomen. In right isomerism, numerous and complex congenital heart defects are often present, such as atrioventricular canal defects and anomalies of pulmonary venous return. However, both in right and left isomerism that there is a vast amount of variation from case to case in associated cardiac defects. Therefore, it is very important to assess the visceral situs accurately and consistently during each obstetric examination. During the routine obstetric sonographic examination, the position of the fetal stomach should be assessed in relation to the cardiac apex by using a transverse view of the fetal thorax and abdomen. Any noted discrepancy should raise suspicion that HS might be present. Visualization of the atrial appendages during fetal echocardiography would provide the most accurate diagnosis of HS. However, routine imaging has not been instituted as the appendages are very small and they

lie in an imaging plane outside the standard four-chamber view. A thorough fetal examination in the suspected heterotaxy patient should include relational positions of the IVC, descending aorta, and azygos system in addition to the cardiac rhythm and visceral organ arrangement. The most frequently encountered anomaly associated almost exclusively with left isomerism is interruption of the IVC with azygos continuation to the SVC. An important diagnostic feature of right isomerism is the ipsilateral position of the aorta and IVC. The aorta and IVC lie parallel on one side of the spine, with the IVC more anterior, instead of the normal arrangement of aorta to the left of the spine with IVC found on the right side of the spine.

The prognosis for a patient with HS varies significantly depending on the cardiac abnormalities and coexisting variable abdominal anatomy. A 50% or higher mortality rate is documented in patients with left isomerism, and for patients with right isomerism, the mortality increases to 85% or greater. When considering treatment for patients with HS, the goal is typically palliative, as surgical repair to achieve normal anatomic arrangement is impractical.

S106 - INTEGRATED HEMODYNAMİC ASSESSMENT

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Normal hemodynamics implies blood flow that provides adequate oxygen and nutrient delivery to the tissues. Blood flow varies with vascular resistance and cardiac function but blood pressure (BP) might not reflect compromised hemodynamics in many cases. Therefore, cardiovascular dynamics should be evaluated in integrated manner and should include targeted neonatal echocardiography (TNE) and near-infrared spectroscopy (NIRS) when required and if available. Close monitoring of trends in vital signs helps to catch slight deteriorations before they appear. Unfortunately, current routine assessment of hemodynamics in sick preterm and term infants is based on incomplete information, sometimes only on mean BP.

Integrated hemodynamics focuses on how to interpret multiple tools of hemodynamics evaluation in sick infants (TNE, clinical details, NIRS, organ specific ultrasound) and the art of formulating a pathophysiologic relevant medical recommendation.

There is sufficient evidence that shows such an integration optimizes care of infants with hemodynamic compromise to prevent progression into late irreversible stages of shock, decreases overall patent ductus arteriosus (PDA) related complications, optimize care of infants with hypoxemic respiratory failure (HRF) and decreases the incidence of progression of infants to end organ dysfunction.

Compromised hemodynamics usually present in either issues in blood flow or requirement of high FiO_2. In the first category, low preload, high afterload, poor myocardial performance, low systemic vascular resistance (most common), left to right shunts and obstruction of systemic blood flow are main problems. Low blood pressure (systolic/diastolic or both), oliguria, metabolic acidosis, tachycardia and poor peripheral perfusion are alarming signs/symptoms.

In the second category, hypoventilation, limited diffusion, ventilation/perfusion mismatch, intrapulmonary right to left shunts, high pulmonary vascular resistance, lung congestion or abnormal anatomy of lung are main problems. Those infants show increased O_2 requirement and ventilatory failure. In addition, ischemia or hypoperfusion of intestine, brain, kidney and lung causes to organ specific signs and symptoms.

By integrating information from the clinical examination with NIRS, and TNE, a complete picture about the problem and management could be achieved. However, TNE is not absolutely required in many conditions. By close observation of BP trends, separate evaluation of each BP component (systolic, diastolic and mean), using age specific BP charts are more important and should be routinely performed. Non-specific selection of any medication should be strictly avoided.

S107 - NEAR INFRARED SPECTROSCOPY IN HEMODYNAMIC ASSESSMENT

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Oxygen is one of the most important substances for maintenance of the life. In physiological status, oxygen delivery and consumption are in the balance. However, it can be compromised in pathological conditions caused by lung, cardiovascular or hematological problems. If it could not be recognized in early stage, those conditions might lead to tissue hypoxia, necrosis and death.

For evaluation of compromised oxygen delivery/consumption, Near Infrared Spectroscopy (NIRS) is a unique tool. Basically, NIRS shows venous oxygen content. If oxygen delivery decreases or consumption increases, NIRS O_2 saturation drops and the difference between arterial sO_2 (pulse oximetry) and NIRS sO_2 increases. Hemodynamically significant ductus arteriosus, hypocapnia, anemia, low cardiac output and tissue stress/infection are examples of such changes. Oppositely, if oxygen delivery increases or consumption decreases, NIRS O_2 saturation remains high and the difference between arterial sO_2 (pulse oximetry) and NIRS sO_2 decreases. Excessive O_2 use and hypercapnia are examples of high O_2 delivery. Hypoxic brain injury or high dose sedation use are examples of low O_2 consumption.

Near infrared spectroscopy does not identify pathology but indicates an abnormal pathophysiological event in targeted tissue and mostly used for brain, intestine and kidney assessments. It also shows compensation level of targeted organ. By integration of NIRS to hemodynamics is especially helpful. Judicious use of NIRS in clinical practice might protect tissues from the next step, anaerobic metabolism and lactic acidosis, before irreversible stage developed.