Can we predict or prevent preterm birth?

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Preterm birth is the most important challenge to modern obstetrics and the leading cause of perinatal morbidity and mortality worldwide. The improved prognosis of preterm neonates is largely due to neonatal interventions. Antenatal steroids have been effective in reducing neonatal morbidity. Major advances in obstetrics are required to prevent spontaneous preterm labor and other disorders responsible for preterm birth. This presentation will argue that the current concepts that underpin the prediction and prevention of preterm birth need to be recast. Preterm birth is heterogeneous, resulting from spontaneous preterm labor (with intact or ruptured membranes), and indicated birth (preeclampsia and fetal growth restriction). Yet, each of these conditions represent syndromes with 1) different etiologies; 2) long preclinical phases; 3) phenotype definitions which are the cause of the disease; and 4) the result of gene environment interactions. We propose that the strategy for risk assessment and prevention of preterm birth needs to be based on the identification of the specific mechanisms of disease responsible for these syndromes. High-dimensional biology and systems biology offer new ways to define the mechanisms of disease and the taxonomy of obstetrical disorders responsible for preterm birth. The contributions of genomics, proteomics, metabolomics and systems biology to the understanding of preterm birth will be described.
Efficient measures to prevent premature birth at high risk

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Introduction: Prematures born ≤32gw are at particular risk. Although many causes of premature birth are known, ascending genital infection is the most important avoidable one. The „protective lactobacillus system” and the vaginal pH play a crucial role in the prevention. BV and/or ascending genital infection start often with a disturbance of this vaginal milieu. Our policy is not only to detect and treat vaginal infections, but already to detect and treat disturbances. Vaginal pH-measurement gives a first insight into this protective bio-system. When the pH is increased, further diagnostic measures – and if necessary therapy – have to follow. In order to detect these disturbances much earlier, we recommend that pregnant women themselves measure their pH regularly from the very start of pregnancy.

Results: In our study the rate of infants <1,500g was 1.3%. – in the previous pregnancy 7.8%. Results from Thuringia (Hoyme et cow): The rate of infants <32gw was 1.58% in the first half of the year 2000, and 0.99% in the second half, when the measure was employed. Both our study and Hoyme’s had some methodological shortcomings; the current study of German health insurance companies is more sophisticated as they used “propensity score matching”. The data are currently being evaluated. First provisional Results are encouraging.

Conclusion: We think that these studies are important first indicators that pH-measurement by the women themselves improves the perinatal outcome. Further research is necessary.

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