Editorial

Late motherhood and cesarean delivery

Over recent decades there has been a considerable increase in the mean age at which mothers in the industrialized world give birth to their first child. For example, since 1990 in the USA, the number of pregnant women aged 45–49 years has increased 190% [2]. Similarly, there is intense debate on the increasing proportion of cesarean deliveries; however, there is little recognition of the connection between the two issues and the possibility of their influence.

Public debate increasingly views developments such as these as a matter for societal concern. In addition, in this public debate of late motherhood, little attention is given to the extensive literature on the risks of late motherhood both for the mother and for the fate, and subsequent prognosis, of the child.

As the age of pregnancy increases, so does the rate of medical and surgical disease. There is a greater incidence of oncological, cardiovascular, metabolic, renal and autoimmune disease. As a consequence of these increasing rates of disease, the risk of admission to the hospital, cesarean delivery, and pregnancy-induced illness is between three and five times greater when pregnancy occurs in women aged over 35 years [3].

A large population-based study [8] demonstrated when pregnancy occurred in women aged over 40 years, there was an increased rate of cesarean delivery (primiparous age > 40 years = 47% vs. age 20–29 years = 23%), an increased incidence of intrauterine growth restriction (primiparous age > 40 years = 3% vs. age 20–29 years = 1%), an increased incidence of gestational diabetes (primiparous age > 40 years = 7% vs. age 20–29 years = 2%) and a shorter pregnancy term (primiparous age > 40 years = 273 days vs. age 20–29 years = 278 days). The greater incidence of preeclampsia and preeclampsia, postpartum bleeding, and the increased number of multiple pregnancies is well known.

Paulson et al. [15] investigated the significance of the age of pregnant women for the incidence of preeclampsia. For pregnant women as a whole, they observed a rate of 3–4%, for women over 40, a rate of 5–10%, and for women over 50 (of which they had 77 pregnant women aged between 50 and 63 years), a rate of approximately 35%. In their investigation of the frequency of gestational diabetes, they observed in the same age groups rates of 3%, 7–12% and 20%. Given the clinical significance of preeclampsia and gestational diabetes, and the importance of both diseases in preventive medicine terms (perinatal programming effects and the risk of mother or child developing metabolic syndrome, and of chronic hypertension and type 2 diabetes in the mother), this connection is extremely important and should not be underestimated in the context of making life choices.

Age-related factors identified as leading to cesarean delivery include multiple pregnancy, (the risk of) oxygen deprivation of the fetus, dystocia, induction of labor, arrested labor, abnormal lie, and presentation and previous cesarean delivery [3, 6, 8, 14].

For the purposes of discussing the cesarean delivery rate, it should be noted that mortality levels in the case of elective cesarean delivery are similar to those of vaginal delivery [16] and very different to those in the case of emergency cesarean delivery. According to Ecker et al. [5], among births involving women over 40, the proportion of elective cesarean deliveries rises to 43% (compared to 12% in the case of women aged < 25 years) and the proportion of emergency cesarean deliveries to 30% (compared to 8%). The authors report that the incidence of cesarean delivery which is not medically indicated (“cesarean section on demand”) rises from 4% in the case of women aged < 25 years to 20% in the case of women aged > 40 years.

Those higher rates of cesarean delivery have significant consequences for subsequent pregnancies. The risk of uterine rupture following one cesarean delivery is calculated to be 0.5–1.0%, and following repeated cesarean deliveries, 3%. Lydon-Rochelle et al. [12] highlighted the difficulties which can arise when labor is induced in women who have previously had a cesarean delivery. In the case of elective cesarean delivery, the risk of uterine rupture is reported as 0.16%, whereas in labor is induced with prostaglandins, the risk is approximately 2.45%.

In connection with the indications for cesarean delivery, it should be especially noted that in the case of primiparous women aged over 40 years, a rate of placenta previa eight times higher than in the case of primiparous women aged under 25 years (0.8% vs. 0.1%) has been observed [11]. The pathophysiological background is unknown.

A contributory factor in the increased rate of cesarean deliveries in cases of late motherhood is the greater incidence of multiple births. In turn, the greater risk of multiple births in cases of late motherhood results both from the greater risk of naturally conceived multiple births and greater use of reproductive medicine technologies, which involve multiple births. Although Delbaere et al. [4] established that multiple pregnancy in the case of older women results in the same or an even better outcome than is the case with younger women, for the mother and children concerned, the risks associated with a multiple pregnancy remain serious. The risk of preeclampsia is some two to three times (3% vs. 10%) greater than in the case of singleton pregnancies. In the case of multiple births, the incidence of anemia is reported as three to four times greater, and the risk of post-birth bleeding four times greater. The children involved are at considerable risk.
of preterm birth. Whereas birth at <32 weeks of gestation accounts for around 2% of all births in Germany, this is the experience in 12% of all multiple births.

Multiple births also impose a social strain on the family. Twenty-five per cent of the parents of multiple births involved suffer symptoms of depression as the long period of hospital treatment experienced by preterm babies, and the economic burdens of child-raising are stressful for the parents [7, 9, 13].

Multiple births are not the only cause of the higher rate of preterm births when there is late motherhood. Singleton births also involve a higher rate of preterm births in cases of late motherhood. For Sweden, Jacobsson et al. [10] established that the rate of preterm births with <32 weeks of gestation was 1.01% in women aged 20–29 years, 1.80% in women aged 40–44 years, and 2.24% in women aged ≥45 years. Therefore, preterm birth is a further factor contributing to the higher rate of cesarean delivery in late motherhood.

Finally, reference should be made to the correlation observed between intrauterine growth restriction and late motherhood [1, 11]. This is important not only as a factor which contributes to the increase in cesarean delivery rates, but because of the possibility of life-long consequences to the child as the result of fetal programming due to metabolic syndrome.

Consequences

Having shown the risks of late motherhood, preventive strategies should be attempted. Young women should be educated about the risks involved in delaying motherhood and about the possibilities, limits and risks associated with reproductive medicine technology. Ideally, this education should include both sexes and begin in school. In addition, teaching plans need to be developed giving women and potential young parents the opportunity to plan their own lives, taking account of their wishes to start a family.

The proven risks of late motherhood and the resulting consequences should provide an impetus for those shaping health care policy. They should protect the autonomy of women and potential parents to make truly informed decisions. We support policy options that protect women and potential parents from coercive societal influences pushing them toward late motherhood. We encourage fiscal policy options, such as granting tax breaks following the birth of a child, that part-time work is encouraged by employers, and that education is assured.

References


Joachim W. Dudenhauen
Currently: Department of OBGYN Weill Cornell Medical College, New York, USA
E-mail: joachim.dudenhauen@charite.de

Frank A. Chervenak
Department of OBGYN Weill Cornell Medical College, New York, USA
E-mail: fac2001@med.cornell.edu