Overweight, obesity and weight gain during pregnancy

A short introduction with the final goal to protect mothers and fetuses from long-term consequences

Overweight and obesity have become epidemic in industrialized and in developing countries. Accordingly, the number of pregnant women with a high body mass index (BMI) is increasing as is excessive weight gain during pregnancy.

Pregnant women with a high BMI have an increased risk of complications during pregnancy, delivery and postpartum. In later life they also are at a higher risk to develop metabolic syndrome, type-2 diabetes and cardiovascular disease. More importantly, fetuses of obese mothers are exposed to obesogens. Obesogens are a subgroup of endocrine disrupting chemicals which have the potential to induce obesity in early life. By the 14th gestational week, the number of fat cells is set to a fixed number and then adipogenesis starts to develop. The number of fat cells cannot be reduced in later life neither by diet nor by exercise.

Children of obese women already show a myocardial dysfunction in the first trimester compared with children of women with normal weight (4). In animal experiments a high-fructose diet determines fetal programming of adult obesity, insulin resistance and hypertension and programming to earlier death is described. Epidemiologic data in humans confirm these findings, which are alarming considering the high prevalence of obesity during pregnancy.

In the United States (US) the Institute of Medicine (IOM) has introduced the concept of trimester-specific limits for weight gain during pregnancy separate for singleton and twin pregnancies, whereby absolute and relative risks were considered. It is now our main purpose:

a) To describe the prevalence of overweight, obesity and weight gain during the last 15 years in Germany

b) To analyze risk factors and their impact for obesity and weight gain during pregnancy

c) To search for statistical evidence of the IOM criteria related to BMI adapted weight gain

d) To test whether adapted weight gain (according to height) would improve the prediction of complications

e) To examine the impact of obesity and weight gain on short-term complications

The results may lead to new recommendations which then can be used for better information of patients and politicians.

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