

# The newborn of a diabetic mother

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Diabetes mellitus (DM) complicates about 2-3% of all pregnancies. Newborn mothers with diabetes fundamentally influence the level of compensation of the mother's diabetes during pregnancy. Neonatal consequences of under-compensated DM include:

- macrosomia (maternal hyperglycemia → fetal hyperinsulinemia);
- hypotrophy (small for gestational age, SGA, in renal, retinal and cardiac complications of the mother);
- metabolic disorders: hypoglycemia in the first hours of life due to high plasma insulin levels, hypocalcemia in the first days of life, hypomagnesemia due to maternal hypomagnesemia);
- cardiorespiratory disorders: perinatal asphyxia, respiratory distress syndrome due to delayed maturation of the lungs and pulmonary surfactant, transient tachypnea of the newborn, hypertrophic cardiomyopathy and septal hypertrophy;
- hematological disorders: hyperbilirubinemia, polycythemia and hyperviscosity;
- congenital defects (in case of poor DM compensation in the first trimester): congenital defects of the heart, kidneys, digestive tract, CNS and skeleton, abnormal facial appearance and microphthalmos.<sup>[1]</sup>

## Pathogenesis

Intermittent hyperglycemia in a diabetic mother leads to repeated hyperglycemia in the fetus, which causes hypertrophy of fetal islets  $\beta$ -cells of the pancreas and increased secretion of insulin. Hyperinsulinemia causes macrosomia and cardiomegaly, metabolism is activated,  $O_2$  consumption rises and relative hypoxemia occurs → compensatory increase in erythropoietin synthesis → polyglobulia. At the same time, it suppresses the formation of surfactant in the lungs and thus participates in the development of RDS.<sup>[2]</sup>

## Prevention

- Compensation of preconception diabetes before planned conception and during pregnancy.
- In pregnant women without DM, two-phase screening for gestational DM: fasting blood glucose test and OGTT in all pregnant women (see Gestational diabetes mellitus).

## Links

### Related Articles

- Gestational diabetes mellitus • Diabetes mellitus in pregnancy
- Neonatal hypoglycemia • Neonatal diabetes mellitus

### References

- 1.
2. HAVRÁNEK, J.: *Poruchy vnitřního prostředí*.