MATERNAL DIABETES MELLITUS AND ITS IMPACT ON OFFSPRING

A THESIS

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Summary

Diabetes affected fertilization, course and outcome of pregnancy depending on the severity of the disease.

In mildly diabetic rats, the weight gain during pregnancy varied largely and was less than that of normal animals. In severely diabetic females, the weight gain varied even more than in mildly diabetic ones.

Only 54% of all females gained weight during the 3 weeks after mating. In diabetic females, pregnancy lasted longer (24-26 days) than in normal ones.

The number of females giving birth was significantly lower than in control. Normal rats: 100% gave birth, mildly diabetic rats: 33.3% gave birth, severely diabetic rats: 18.9% gave birth; stillborn = 7.3%.

The mean number of pups delivered was significantly lower than in control. Diabetic female offspring showed:

- Significantly higher birth weight, 4.5% macrosomic pups
- Significantly shorter head length at birth
- Significantly higher relative pancreas weight at birth (+ 36%)
- Congenital malformations of the skeleton as well as delayed ossification of bones
- Pancreas: hypertrophied beta cells at birth, degenerating thereafter
- Liver and kidney: degenerating
- Significantly elevated fasting blood glucose levels
- Significantly elevated insulin level at birth
- Increasing insulin-resistance
- Decreasing in B-cell function