



The Pregnant Diabetic

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At present, more diabetic females of childbearing age are going through pregnancy, and more diabetic children are living beyond maturity. The outlook for the pregnant diabetic has improved greatly but the infant mortality rate of diabetic children remains relatively high. My remarks are based on observations on 105 pregnant diabetics from my private practice.

Pregnancy imposes a strain, not only on the heart and circulation, but also on the carbohydrate metabolism of the body. Insulin needs of the pregnant diabetic often change, and certain pregnant women have a temporary increase in the blood sugar levels, accompanied by glycosuria; blood sugars return to normal between pregnancies. Some of these patients may present with full-blown diabetes after several pregnancies. Some workers suggest that control of this temporary diabetes with each pregnancy may prevent, or at least postpone, diabetes in an appreciable percentage.

The goal in following the diabetic pregnant woman through pregnancy is to see that she remains in good health and delivers a normal baby. The delivery of a live infant is not sufficient. Of four babies delivered from 26 to 30 weeks of pregnancy, all were born alive but died in a few hours. Of the 10 babies delivered from 30 to 34 weeks, 9 were born alive and the 10th was delivered just under 34 weeks of a 41-year-old woman with severe acidosis. Of these 60% in the neonatal stage died. To attain our goal, we must try to treat the

mother and deliver the baby at such a time and in such manner to guarantee the good health of the baby and the mother.

GLYCOSURIA AND ACIDOSIS

I shall mention a few factors that influence treatment of the mother. The lowering of renal threshold for sugar is bothersome but not serious. More frequent blood sugar determinations are needed, greater attention to clinical observations is imperative, and prompt treatment for untoward findings is in order. The renal threshold may be expected to drop in 25% of cases, reaching below 120 mg in 11%. These figures are based on blood sugar determinations at certain times after meals, as correlated with urine sugar in specimens voided at the same time the blood is drawn.

The ease with which acidosis occurs in the pregnant diabetic woman is well recognized. Acidosis can develop quickly and advance rapidly in patients with blood sugar levels that are rarely associated with acidosis in the non-pregnant diabetic. Any acute infection, e.g., gastroenteritis, that seems trivial otherwise, poses a threat to the life of a diabetic.

FETAL SURVIVAL

The survival of fetuses of diabetic mothers has not increased significantly in the last 30 years. The time of delivery appears to have a definite influence; the 37th week was associated with the best sur-

vival rate, whereas all of those younger than 30 weeks died *in utero*. Excessive weight gain was associated with a higher fetal mortality. If pregnancy had progressed to the 34th week, the fetal survival rate was not seriously affected by episodes of acidosis, but acidosis occurring earlier in pregnancy accounted for many still-births.

NEED FOR INSULIN

During pregnancy the insulin need is apt to rise, although some doctors seem to believe that the baby's pancreas will supply insulin to supplement that of the mother. In only two of our patients did the insulin need drop, one from 60 units to 34 units with a subsequent rise to 54 units in a case of fetal death, and the other from 35 units to zero in a case with fetal survival. In 38% of the series, there was no appreciable change in the insulin need, but in 50%, the need increased to as much as 100 units. Fetal survival seemed uninfluenced if the dose was changed as indicated.

At the time of delivery, in those patients in whom insulin need had increased during pregnancy, the insulin need dropped abruptly the day of delivery to the prepregnancy level or lower. If such a reduction in the insulin dosage is not made, one may expect severe hypoglycemia.

The method of delivery in primipara is chosen the day of delivery. If the cervix is soft and somewhat dilated, and there are no other contraindications, vaginal delivery is performed if labor progresses satisfactorily. Otherwise, Caesarian section is indicated unless death of the fetus seems obvious. Over half the patients are delivered by Caesarian section and the fetal survival seems better, 91% as opposed to 76% with pelvic delivery. This difference may be due in part to the fact that Caesarian section is done only when there is an apparently living fetus.

SUMMARY

All diabetic mothers survived pregnancy in this series. If the mother's diabetes was well controlled, her weight gain is less than 16 pounds, and delivery occurs at about the 37th week, the baby has about a 90% chance of survival. This may be improved if prompt delivery is carried out when the insulin need drops 10 units or more. However, since the fate of the baby appears to depend on whether delivery should be made on a given day or three days later, obviously we lack some fundamental knowledge about the pregnant diabetic. It seems worthwhile to emphasize the need to reduce the dose of insulin the day of delivery to a level that is at least as low as the prepregnancy need of the mother.