MEDICAL PRACTICE

Occasional Survey

Diabetic Pregnancy

NINA L. ESSEX, D. A. PYKE, P. J. WATKINS, J. M. BRUDENELL, H. R. GAMSU

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Introduction

The purpose of this article is to describe the management of diabetic pregnancy in one hospital unit.

Before insulin became available most diabetic pregnancies ended disastrously, and for several years afterwards fetal mortality remained at about 40%. Since the late 1940's, however, there has been a steady improvement and figures for the years 1971-2 are still lower. We may hope that with improved medical, obstetric, and paediatric care we may soon approach the results obtained in non-diabetics (table I).

TABLE I—*Perinatal Mortality at K.C.H. over 20 Years*

	Total Deliveries	Total Perinatal Deaths	Late Deaths 1-12 Months
1951-5	132	42 (32%)	
1956-60	180	30 (17%)	
1961-5	213	24 (11%)	3
1966-70	176	15 (9%)	3
1971-2	77	0	1

Control of Diabetes

During the last two decades about 35 diabetic women a year have been delivered at King's College Hospital. Most of the patients were regular attenders at the diabetic clinic, but some were referred from other centres specifically for the management of the pregnancy.

Diabetic, Obstetric, and Child Health Departments, King's College Hospital, London SE5 9RS

N L. ESSEX, M.B., M.R.C.P., Honoray Senior Registrar
D. A. PYKE, M.D., F.R.C.P., Physician
P. J. WATKINS, M.D., M.R.C.P., Physician
J. M. BRUDENELL, F.R.C.S., F.R.C.O.G., Obstetrician
H. R. GAMSU, M.B., F.R.C.P., Paediatrician

CLASSIFICATION OF DIABETES IN RELATION TO PREGNANCY

The most commonly used classification is that of White[1] which comprises five groups of increasing "severity" of diabetes. We have found this system unnecessarily elaborate for two reasons: the hazards are as great to the fetus of the very mild diabetic as of the more severe case, and seriously complicated cases of diabetes are uncommon among pregnant women.

We use the following simple classification. (*a*) Diabetes diagnosed during pregnancy, whether it remits thereafter (gestational diabetes) or not. This group comprises 18% of patients seen in our hospital in the past five years. (*b*) Established cases of diabetes with mild or no signs of complications. (*c*) Established cases with serious complications. In our practice no more than 2% of cases come within this category.

DIAGNOSIS OF DIABETES DURING PREGNANCY

Normally glucose tolerance is slightly impaired as pregnancy progresses[2] and the diagnosis of diabetes is necessarily arbitrary. We use a 50-g oral glucose tolerance test and the diagnostic criteria of the British Diabetic Association (fasting blood glucose level and two-hour figure after glucose over 120 mg/100 ml, peak level greater than 180 mg/100 ml) at all stages of pregnancy. These figures are well above the normal rise in blood sugar levels seen in pregnancy.

CLINIC PRACTICE

Our practice is for the physician and obstetrician to see the patient together in the diabetic department at a special antenatal clinic. This means that the patient needs to attend the hospital only half as often as if the clinics were separate and there is great advantage in immediate medical consultation on questions of management and timing of visits and of admission to hospital.

The women come to the clinic about once a month until 28 weeks, then fortnightly until 32 weeks, when they are admitted to the obstetric ward for bed rest and more intensive investigation and treatment until delivery at 37 to 38 weeks. This routine is followed no matter how "mild" the diabetes. Most women co-operate in this rigorous regimen despite the home and family difficulties it entails. Only one patient out of the last 100 has refused early admission. This policy of routine admission to hospital five to six weeks before delivery means that about four beds are continually occupied by these patients but it has the advantage of allowing strict control of the diabetes, close monitoring of the state of pregnancy, and immediate action in an emergency.

MEDICAL MANAGEMENT

Of the established diabetics 97% required insulin throughout pregnancy. The others remained well controlled on diet alone or, rarely, on oral hypoglycaemic agents.

There is no convincing evidence that oral hypoglycaemic agents in pregnancy are teratogenic; but they can lead to serious neonatal hypoglycaemia, especially the long-acting chlorpropamide, and we therefore usually turn to insulin when diet alone fails to control blood glucose levels.

Insulin requirements usually rise progressively after the first trimester and by term have usually increased by 50-100%. Sometimes there is no change in insulin dose, and occasionally it falls. Because of the need for scrupulous control of the diabetes during pregnancy we use a flexible insulin regimen. Almost all patients receive two daily injections of soluble insulin, often with isophane insulin added to one or both injections to prolong the effect of the shorter-acting soluble insulin. If blood sugar control on a different regimen remains satisfactory we do not change, but in practice single daily injection regimens seldom maintain good control throughout pregnancy and most of our patients are on soluble insulin injections by 20 weeks. Because of the importance of blood sugar control patients are readily admitted to hospital for restabilization at any stage of pregnancy. Diabetic ketoacidosis is dangerous, often being fatal to the fetus.

We aim to keep the maternal blood glucose levels as near to normal as possible without causing troublesome hypoglycaemia. In outpatients we try to keep random blood glucose values below 150 mg/100 ml, but after the woman is admitted at 32 weeks we can aim for stricter control. We then try to keep preprandial blood glucose levels below 100 mg/100 ml and, though we do not always succeed, the mean preprandial blood-sugar level is little above normal (table II). These women are at rest for most of the day, getting up only for meals, lavatory, etc., and perhaps for this reason tolerate low blood sugar levels without significant symptoms.

The renal threshold for glucose falls during the second half of pregnancy in about 20% of patients. The threshold may vary from day to day in the same woman with apparently similar blood glucose levels. Twenty-four-hour urinary loss in one patient on consecutive days varied from 1 g to 31 g though preprandial blood sugar levels were all below 100 mg/100 ml. Some patients may lose as much as 100 g of glucose a day in the urine, which may lead to starvation ketosis. It is then necessary to increase the dietary intake and to give about 20 g of sugar three times daily after the main meals.

TABLE II—*Blood Glucose Values in Pregnant Diabetic Women (32-38 Weeks)*

No. of Patients	No. of Observations	No. of Blood Sugar Values		Mean Blood Glucose (All Observations)
		>150 mg/100 ml	>200 mg/100 ml	
44	1,674	208 (13%)	70 (4%)	112 mg/100 ml

Capillary blood samples are taken at 12 noon and 9 p.m. to assess the peak affect of soluble insulin, and at 6 p.m. and 7 a.m. to assess the peak effect of isophane insulin on two days each week. There was little difference between the mean blood glucose levels at 3-5 and 11-12 hours after insulin injections (108 and 117 mg/100 ml respectively).

Obstetric Management

Obstetric complications up to 32 weeks are comparatively rare. Occasionally severe degrees of hydramnios occur and are associated with poor diabetic control. When the patient is admitted to hospital at 32 weeks the following observations are made and recorded on a special chart. (1) Daily—Abdominal palpation. Fetal heart recording. Four-hourly urine test for sugar, ketones, protein (during the daytime). Twice-daily blood pressure readings. (2) Twice weekly—Blood glucose series (four specimens in 24 hours). Urinary oestriol estimation (24-hour specimen). Human placental lactogen levels in serum. (3) Once weekly—Weight and girth measurement. Fetal biparietal diameter by ultrasound scan. (4) At 36 weeks—*x*-ray examination of abdomen. (5) At 37 weeks—Localization of placenta by ultrasound followed by amniocentesis. Liquor sent for maturity and lecithin/sphingomyelin estimation. Vaginal examination to assess possible disproportion and state of cervix. Oxytocin (Syntocinon) stress test or other monitored observation on the fetal heart rate and rhythm. The incidence of pre-eclampsia among diabetic patients is no higher than in the non-diabetic.

ANTENATAL FETAL MONITORING

Measurements are made of urinary oestriol excretion, serum human placental lactogen levels, and ultrasound biparietal diameter so that intrauterine death from placental failure is so far as possible anticipated and avoided. Wide variation occurs between patients and serial measurements are therefore essential. In practice placental insufficiency in the usual obstetric sense leading to a small-for-dates baby is seldom seen in diabetic pregnancy and the value of placental function tests is limited.

The fetal biparietal estimation is begun at the 28th week when a reasonably accurate check of fetal maturity can be made; this is sometimes helpful in patients who are unsure of the date of their last menstrual period or have an irregular cycle. Ultrasound measurement combined with radiological assessment of maturity by means of a plain film of the abdomen at 36 weeks are usually sufficient confirmation of the clinical findings. If doubt remains some of the liquor taken for lecithin estimation can be examined cytologically both for the presence of fat-containing cells and the maturity of fetal squames. Antenatal monitoring of the fetal heart rate rhythm is still in the stage of development but may well prove to be the best test of fetal well-being in pregnancy and in labour. It may give information on "fetal distress" due to biochemical disorders apart from anoxia, which may play a part in the occasional intrauterine death that occurs in late pregnancy even in the apparently well controlled diabetic. Respiratory distress has been a major factor in the perinatal mortality of babies born to diabetic mothers in the past, but the finding that the functional maturity of the pulmonary alveoli can be measured by estimating the level of lecithin in liquor has been of value. Amniocentesis is performed at about 37 weeks and the lecithin/sphyngomyelin ratio in liquor is estimated. Provided this is above 2 the chances of respiratory distress developing are slight if the baby is delivered within 48 hours of the time of estimation.

Delivery

MANAGEMENT OF DIABETES IN DELIVERY

Induction of Labour.—If labour is to be induced isophane insulin is omitted on the night before and on the morning of

induction. The normal dose of soluble insulin is given on the previous night and half the normal dose on the morning of induction. An infusion of 8% glucose is begun in the morning and about 20 g of glucose given over the first hour to replace breakfast and 10 g given hourly thereafter. Blood glucose levels are estimated at two- to three-hourly intervals and soluble insulin given accordingly.

Caesarean Section.—Women undergoing elective caesarean section have a similar insulin regimen. An intravenous infusion is kept up after operation until the patient is able to take fluids by mouth and insulin is given according to a four-hourly scale related to urine test results. Insulin requirements nearly always fall immediately after delivery, probably due to the loss of insulin antagonism by placental lactogen. We normally wait for glucose to reappear in the urine before resuming insulin and then give the same dose of soluble insulin as was used before the pregnancy. Usually, little change from this dose is needed.

TIMING OF DELIVERY

All earlier experience indicated that the risk of intrauterine death to the fetus was maximal in the last four weeks of pregnancy. With good control of the diabetes this risk is much reduced and the pregnancy can be allowed to progress beyond 36 weeks. The deciding factor against premature delivery has been the risk of respiratory distress in the infant. With the information of the maturity of the fetal lung obtained from liquor lecithin/ sphyngomyelin estimations this risk can be almost eliminated. Most diabetic pregnancies can be safely terminated at any time after the completion of the 37th week. An unripe cervix or low lecithin/sphyngomyelin ratio indicate the need to postpone delivery, while a raised blood pressure or low oestriol or placental lactogen levels indicate placental insufficiency, and occasionally make early delivery desirable.

MODE OF DELIVERY

Previously most diabetic women were delivered by caesarean section but now the aim should be vaginal delivery except in patients requiring an elective caesarean section. (1) Previous caesarean section is an absolute indication for a repeat; the "trial of scar" added to the problems of diabetic control in labour and the possibility of mild disproportion due to a larger-than-average baby all indicate that the repeat section is safest for both mother and baby. (2) Malpresentation, especially breech. (3) Age and previous infertility may influence the obstetrician in favour of avoiding the problems of labour, but the decision in such cases should be made for each patient.

VAGINAL DELIVERY

Most pregnant diabetics should now be induced with a view to vaginal delivery. Surgical induction under premedication or general anaesthesia is combined with response-related intravenous oxytocin by intravenous drip. Initially a concentration of 2 units/500 ml of 1/5 normal saline at a rate of 15 drops a minute is given. The drip rate is doubled every 30 minutes up to 60 drops a minute, after which the concentration is increased to 4 units/500 ml. This rate of increase in oxytocin dose is maintained until the patient is having good uterine contractions every three minutes and thereafter the dose is adjusted to maintain this state of uterine activity. Uterine contractions are recorded by means of a tokodynamometer strapped to the mother's anterior abdominal wall.

At the time of rupture of the membranes an epidural catheter is inserted so that analgesia can be started when contractions begin. A fetal scalp blood sample is taken and the pH measured. A scalp electrode is applied and a continuous record of the fetal electrocardiogram fed into a Hewlett-Packard monitor. Early signs of fetal distress are an abnormal heart rate and loss of beat-to-beat variation in fetal heart rate. Irregular and late decelerations develop later and are associated with a low pH (< 7·25). These techniques lead to early detection of fetal distress; in the last two years no baby of a diabetic mother has been allowed to become asphyxiated in labour. This has resulted in fewer difficulties in management of the newborn baby.

In practice, induction of labour by oxytocin has been very effective and has shortened the duration of labour to 8 to 12 hours. Slower labours are allowed to exceed 12 hours only if steady progress is being made and there is a real prospect of early delivery: otherwise caesarean section is done.

The value of fetal monitoring was shown in the first 32 cases of diabetic labours monitored. Of these, six developed unexpected fetal anoxia and required emergency caesarean section. No baby was lost and none developed respiratory distress. Fetal anoxia can develop unexpectedly and rapidly even in a patient whose diabetes is mild and well controlled.

Care of the Infant

SPECIAL FEATURES OF NEWBORN OF DIABETIC MOTHER

In spite of some recent fall of birth weight in these infants, most still have the characteristic appearance of being fat* and plethoric. The large size of some of the babies increases the risks of birth trauma—usually only bruising of face, scalp, or limbs, but occasionally cephalhaematoma or fractures result.

The main problems are as follows (see table III).

TABLE III—*Common Symptoms and Signs in Infant*

Symptom	Time	Treatment
Tachypnoea (> 60/min) ..	First 24 hours	Ensure infant is not being overheated. Exclude polycythaemia
Tachypnoea accompanied by signs of respiratory distress: Grunting on expiration Increased respiratory effort: Indrawing of intercostal muscles Sternal recession Flaring of the nostrils Cyanosis		*X*-ray film of chest. Give oxygen Insert umbilical arterial catheter. Correct acidosis. Continuous positive airways pressure or ventilation if necessary, depending on Pao_2 and infant's condition
Hypotonia, apnoeic attacks, extreme excitability, tremulousness, rolling eye movements, convulsions, hypothermia	Usually first 48 hours	(1) Dextrostix test. If < 45 mg/100 ml check blood glucose. Give intravenous glucose 1 g/kg of glucose (as 50% solution) in a peripheral vein. If symptoms are abolished continue with 10% glucose infusion. This can be stopped gradually with careful monitoring of blood glucose (2) Serum calcium. If < 7 mg/100 ml administer 5% Ca gluconate* (50-100 mg/kg) intravenously 1 ml/min preferably with E.C.G. monitoring. Low phosphate milk. Ca gluconate 100 mg/kg by mouth at each feed for three to four days (3) Serum magnesium. If < 1·5 mg/100 ml give intravenous injection of magnesium sulphate 0·1 ml/kg of 50% solution (4) If symptoms unexplained—exclude polycythaemia. Blood culture. Lumbar puncture for meningitis
Bruising	At birth	Phenobarbitone 2·5-5 mg/kg/day in three divided doses for first three to five days
Jaundice	Biliburin > 10 mg in first three days and rising	Phototherapy. Increase fluid intake

*Never mix with bicarbonate.

*Total body fat is increased and extracellular fluid decreased. If body weight is used as a reference, the dose of drugs and fluid can be overestimated.

Respiratory.—Some degree of asphyxia in these infants is fairly common, 40% having an Apgar score of less than 7 at one minute, and of these more than half require to be intubated. Severe respiratory distress, previously an important complication, is now much less frequent, but 16% of our infants born in the past five years had mild distress which usually cleared within 12 hours. The most pronounced symptoms were tachypnoea, grunting on expiration, and flaring of the nostrils. In some of the larger infants the tachypneoa was corrected on moving to a cooler environment. There were four cases of severe idiopathic respiratory distress syndrome with two deaths.

Hypoglycaemia.—Low blood glucose levels 60 minutes after birth, rising in the next six hours and unaccompanied by symptoms are common. Asymptomatic hypoglycaemia (blood glucose less than 30 mg/100 ml at two hours and four hours persisting for a variable period) occurred in 14% of our infants. A further 12% had symptomatic hypoglycaemia (table IV).

TABLE IV—*Routine Investigations of Infant of a Diabetic Mother*

Investigation	Time	Treatment
Fetal scalp blood sample for pH, HCO_3, and base deficit	In labour	If acidotic delivery expedited then 5 mEq sodium bicarbonate given intravenously
pH, HCO_3, and base deficit	30 mins	If pH <7·28 and base deficit <-5 mEq/l., give sodium bicarbonate (8·4%) intravenously, half immediately and half over four to six hours in 10% glucose, in a total dose calculated thus: 0.3 x wt. base deficit in mEq/l.
Dextrostix test	2 hours	Reading <45 mg/100 ml and no symptoms: observe and repeat test at four hours. If still < 45 mg/100 ml, check with glucose oxidase. If true blood glucose < 30 mg/100 ml then give 10% glucose intravenously 60 ml/kg/day. With early feeding infusion can usually be gradually stopped within 24 hours
Packed cell volume	2 hours	If > 70% remove 5-10% of blood volume and replace with plasma

Congenital Abnormalities.—In 1968-72 there were seven infants with severe congenital abnormalities—four with hemivertebrae and cardiac defects, two with volvulus and malrotation of the gut, and one with encephalocoele. We have not seen cases of sacral agenesis (caudal regression syndrome).

Other problems are as follows.

Hyperbilirubinaemia.—27% of the infants had at least one serum bilirubin value over 10 mg/100 ml and exchange transfusion was performed in six. Bruising, polycythaemia respiratory distress, and prematurity predispose to jaundice; early feeding reduces the incidence of jaundice and the degree of bilirubinaemia.

Polycythaemia.—The mean packed cell volume (P.C.V.) of capillary blood at four hours was 59·5%. Severely polycythaemic infants may appear plethoric and may be lethargic and hypotonic and occasionally have respiratory distress. Some may develop twitching of the limbs or even convulsions. We have had three infants with values of over 70%. All improved after venesection.

Hypocalcaemia.—Serum calcium vales of less than 7 mg/100 ml were present in six infants and in two were associated with magnesium levels of less than 1·5 mg/100 ml. These values are determined only in cases with suggestive symptoms —neuromuscular excitability, apnoeic spells, and fits. Chvostek's and Trousseau's signs are not reliable. Hypocalcaemia is more common in infants of diabetic mothers and is seen particularly in infants who are hypoglycaemic or acidotic or both.

MANAGEMENT

The paediatrician is always present at the delivery. Asphyxia is anticipated and treated in the usual way with nasopharyngeal suction and endotracheal intubation, if necessary followed by inflation with oxygen. Because rigid plastic clamps may break through the excessively thick umbilical cord it is best ligated with broad linen tape. Overhead radiant heating is used to prevent hypothermia and the infant is exposed as little as possible. A sample of gastric fluid is aspirated via a nasogastric tube for examination for leucocytes and for culture.

The baby when breathing normally is dried and wrapped in a warm towel and the mother if not anaesthetized sees and handles her infant immediately after delivery. Thereafter the baby is nursed in a warm incubator in the neonatal intensive care unit for the first 24-48 hours. The temperature in the incubator is maintained at 32-34°C to keep the abdominal skin temperature at 36·5° but for some of the larger infants this is too warm.

A 1 mg dose of vitamin K_1 is given intramuscularly. Within 30 minutes of delivery pH, bicarbonate, and base deficit are measured in a sample of capillary blood. If there is a base deficit the observations are repeated at four to six hours. Base deficit is corrected by giving bicarbonate (see table IV) and hypoxia by administering oxygen. In cases of respiratory distress a chest *x*-ray film is taken and if the condition becomes severe continuous positive airways pressure is used. Intermittent positive pressure ventilation is reserved for the most severe cases.

P.C.V. and blood glucose are estimated on capillary blood at two hours (for management see table IV). The aim is to maintain blood glucose at over 40 mg/100 ml. If the P.C.V. is over 70% 5-10% of blood volume is removed via peripheral vein and replaced by an equal volume of plasma.

In cases of hypotonia, extreme excitability, cyanosis, apnoeic attack, or convulsions, then serum calcium, magnesium, blood glucose, and P.C.V. are estimated. In refractory cases infection or intracranial haemorrhage should be excluded. In infants with severe bruising phenobarbitone is given 2·5-5 mg/kg/day in three divided doses in an attempt to prevent severe jaundice. If bilirubin levels are over 10 mg/100 ml and rising phototherapy is used.

Milk feeding is begun within the first two to three hours and continued at two- to three-hourly intervals.

The infant is examined at least twice while in hospital particularly to exclude congenital abnormality. Parents are kept fully informed about their infant while he is in the nursery and they are encouraged to visit and handle him. Most infants are returned to their mothers within 48 hours. After discharge from hospital progress is followed in the clinic for the first 18 months of life.

BIRTH WEIGHT

Birth weights of babies born to diabetic mothers are shown in table V.

TABLE V—*Birth Weights Related to Gestational Age*

Period	Average Birth Weight (g)	Average Gestational Age (Days)
1961-2	3,282	256
1971-2	3,329	264

Though the gestational age at delivery has risen by eight days over the past 10 years the weight gain is small. This may be related to stricter blood sugar control. During the past two years we have seen only one infant heavier than 4,500 g (10 lb). The infants are now, on average, about 200 g above normal weight for their gestational age.

DIABETES DIAGNOSED DURING PREGNANCY

Of the 32 women developing diabetes during pregnancy in the five years 1967-71 26 remained well controlled on diet alone, five required insulin at some stage during the pregnancy, and one received chlorpropamide. Three delivered stillborn babies.

The subsequent course of these women is as yet uncertain. Of the 15 in the group whom we have been able to follow after the puerperium four remained diabetic and four, having apparently reverted to normal after delivery (gestational diabetes), subsequently developed frank diabetes. The time between delivery and reappearance of diabetes ranged from 11 months to four years. Thus eight out of 32 patients are known to have become diabetic, presumably permanently, within four years of delivery, though in most of these cases the diabetes is mild. Two patients are on insulin, two are on oral hypoglycaemic drugs, and four on diet only. Diabetes appearing during pregnancy is thus not only a hazard for the fetus but carries a risk of permanent diabetes in the mother.

Other Aspects

CONTRACEPTION

Fertility is, so far as we know, normal in diabetic women. Contraceptive advice is essentially no different from that given to non-diabetic patients. We do not regard diabetes as a contraindication to taking the contraceptive pill, though in patients with gestational or very mild established diabetes we watch blood glucose or, if in doubt, glucose tolerance. So far we have not observed severe deterioration of glucose tolerance on the pill, and have not had to discontinue oral contraception for this reason.

SIZE OF FAMILY

The diabetic woman has to take more care of her own health than normal and may not be eager to have the extra burden of a large family. We usually advise a diabetic woman to limit her family to two children and offer the option of sterilization after the birth of a second live child. Of 77 patients delivered in 1971-2 nine were sterilized immediately after delivery.

CONTRADICTIONS TO PREGNANCY

The long-term as well as the short-term prognosis for the mother should be considered when advising a couple about starting a pregnancy. If the mother cannot be reasonably expected to survive in good health for about 15 years it would be unfair to a child to encourage the woman to conceive. The presence of severe complications of diabetes, especially retinitis proliferans or renal disease, is therefore a contraindication to pregnancy. Nevertheless, we see few patients with serious complications, perhaps because they take care not to become pregnant, or—contrary to the experience of some other centres, such as the Joslin clinic[2]—because such patients are uncommon. Minor degrees of retinopathy are quite often seen in women who have been diabetic for many years and are not usually of prognostic importance.

PROGNOSIS AND GENETIC RISKS

It is widely believed that infants of diabetic mothers have a higher incidence of congenital malformations than those born to normal women. In a follow-up study of viable babies born to diabetic women at this hospital in 1956-62, major or multiple abnormalities or a combination of both were found in 17 out of 240 infants of diabetic mothers as compared with seven out of 220 infants of a group of control mothers, but the difference is not statistically significant.[3] The frequency of minor abnormalities—for example, hare lip, supernumerary digits, etc.—was similar in both groups.

The prevalence of diabetes in the group born to diabetic women was three out of 192 during a follow-up of 16 years compared with none out of 216 in the control group. The prevalence in the general child population is about 1/1,000. From this and other studies it seems that the risk of a child of a diabetic woman becoming diabetic, though above normal, is very small, and in practice few couples are deterred by it. Even when both husband and wife are diabetic the children are unlikely to develop the condition.[4]

None of our patients had advanced vascular disease and the reported correlation between congenital malformations and this complication could not, therefore, be examined.

The follow-up study suggests that the prognosis for children born to diabetic women is good once the hazards in the perinatal period are overcome and is similar to that of children born to non-diabetic women.

ADOPTION

There are some difficulties for the diabetic woman seeking to adopt a child. Adoption societies do not bar diabetics specifically but base their final decision on the likelihood of the mother surviving 15 to 20 years—that is, until the child becomes independent.

Conclusion

In managing pregnant diabetics it is notoriously easy to be deceived by a run of successes. Nevertheless, other centres too are getting better results than previously, and we think therefore that we are seeing a real improvement. We assume that the reasons for this improvement are (1) scrupulous control of the diabetes (2) careful timing of delivery and (3) intensive care of the baby during and after labour.

Nevertheless we do not know why the respiratory distress syndrome is now so much less common than it was a few years ago. Modern techniques of monitoring before and during labour are a great advance but we suspect that having a special team for pregnant diabetics of physicians, obstetricians, and paediatricians and ancillary staff is even more important.

Requests for reprints should be addressed to: Dr. Nina L. Essex, Diabetic Department, King's College Hospital, London SE5 9RS.

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