

EXPERIENCE WITH PREGNANT DIABETIC MANAGEMENT

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Pregnancy may unmask the latent diabetic or cause deterioration of the pre-existing Diabetic Mellitus. This is an important complication or high risk factor to be recognized during pregnancy. Advances in obstetric technology have been incorporated into the management of the pregnant diabetic patient, and it has been shown that modern supervision of mother and fetus can result in improved perinatal outcomes.^{1,3} It is now proved beyond doubt that the outcome of pregnancy in diabetes is greatly influenced by the control of blood sugar. Many reports^{4,5} are available emphasising the beneficial effects of optimal control of maternal blood sugar, before and during pregnancy.

Although nutritional aspects of care are acknowledged to be important, nutrition has received only cursory comments in most descriptions of the intensive approach towards the pregnant diabetic woman. The past decade has witnessed an increased awareness of importance of good nutrition in normal pregnancy. Care of the pregnant diabetic female therefore depends on providing adequate nutrition as well as meeting the requirements towards maintenance of euglycemia throughout the day.

Most investigations^{4,5} currently recommend rigid control of maternal blood glucose levels for both gestational diabetics and the pre-pregnancy insulin dependent diabetic. The role of diet, although important in both categories of

patients, may differ because of influence of pre-pregnancy weight and health, dietary habits and nutritional education. Certain controversies regarding the choice of hypoglycemic agents exist and the choice depends on the individual case under consideration.

An analysis of patients delivered at the All India Institute of Medical Sciences Hospital, New Delhi for the years 1977 to 1983 and 1984 to 1987 has been undertaken to illustrate the impact of modern perinatal care upon the diabetic pregnancy. During this period, there were 17,425 women delivered of whom 287 (1.6%) were identified as diabetics. The age distribution and parity are shown in Table 1 & 2. These included 176 (68%) gestational diabetics and 91 (32%) previously known

Table 1
Age Distribution of Diabetics

Age (Years)	Period of study		Total Nos
	1977 to 1983 Nos	1984-1987 Nos	
< 20	1	2	3
21 — 25	37	39	76
26 — 30	52	69	121
31 — 35	32	20	52
> — 35	15	12	27
Unknown	--	3	3
Total	137	145	282

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insulin dependent diabetics (Table 3). The high incidence of gestational diabetics reflects the institutional effort at intensive screening and identification, whereas the incidence of known insulin dependent diabetics reflects community referral to this specialised centre. Of the women receiving antenatal care. 80 to 85% belong to the at risk category. Screening has been used for the following indications :

- i. History
 - familial diabetes
 - previous large baby
 - recurrent abortions
 - previous multiple congenital anomalies
 - unexplained stillbirths or neonatal deaths
 - recurrent or refractory monilial vaginitis.
 - recurrent urinary tract infection

- ii. Physical examination revealing
 - uterus disproportionate for dates
 - Polyhydramnios
 - Obesity
 - excessive weight gain with pregnancy
 - pregnancy induced hypertension
 - unexplained other vascular disturbances.

Table 2
Parity Distribution

Parity	Period of study		Total
	1977 to 1983	1984 to 1987	
Primigravida	41	25	66
Multigravida	96	120	216
Total	137	145	282

Table 3
Duration of Diabetes

Diagnosed in current pregnancy	176
< 10 years	86
> 10 years	5
Total	287

During antenatal examination all patients get their urine checked for sugar and albumin at all visits. If sugar is detected in urine, then, fasting and postprandial blood sugar is estimated. If any of these values are abnormal, a standard oral GTT should be done. In patients who have one or more of the above screening criteria present, but GTT is normal, they have a repeat GTT at 30 to 34 weeks of pregnancy.

The rationale for management and the intensive fetal surveillance were applied to both categories of diabetics. For all patients a goal of blood sugar normalization was established. On an ambulatory basis, fasting blood glucose concentration under 100 mg/dl and post prandial levels approximating 120 mg/dl were sought. Nutritional counselling was provided and diabetic diet recommended. The ambulatory management was supplemented by hospitalization both for clinical evaluation and control of blood glucose concentration. When diet alone failed to maintain the blood glucose concentration in the range of 70 to 120 mg/dl, Insulin therapy was initiated (Table 4).

Antepartum electronic monitoring of the fetal heart and ultrasonicevaluation of fetal

Table 4
Medical Management

Management	Period of study		Total
	1977 to 1983	1984-1987	
Diet alone	67	93	160
Diet + Insulin	64	25	89
Diet -1- Oral AD	6	—	6
Unknown	—	27	27

biophysical profile was employed periodically. Transabdominal amniocentesis for evaluation of fetal pulmonary maturity was initiated upon the individual clinical circumstances.

In labour, these women were monitored intensively. If the estimated birth weight of the baby was >4.1 kg. an emergency caesarean section was undertaken. In women scheduled for a planned induction of labour, the regimen followed was as follows :-

- Omit morning dose of Insulin
- Intravenous Glucose Saline 125 ml/hr
- Blood glucose estimation
- Insulin administration as required.

The mode of delivery (Table 5) was individualized with the principal objective being delivery at term with an avoidance of fetal stress. Vaginal delivery following spontaneous onset of labour or by induction under favourable conditions was accomplished in 155 (50.2%) of patients. Caesarean section was undertaken in 132 (40.8%) of patients. The period of gestation at the time of intervention is as shown in Table 6. The birth weight of infants delivered at corresponding gestation period are as shown in Table 7.

Table 5 A
Mode of Delivery

	Period of Study		Total
	1977 to 1983	1984-1987	
	137 pts	130 pts	267pts
Spontaneous			
Vaginal			
Delivery	59	56	115
Induced Delivery	78	74	152

Table 5 B

Induced Delivery

	Period of Study		Total
	1977 to 1983	1984-1987	
	78 pts	74 pts	152 pts
Vaginal delivery	16	4	20
Caesarean section	62	70	132

Table 6

Gestation Period of Termination

Gestation (weeks)	Period of study		Total
	1977 to 1983 (137)	1984-1987 (145)	
< 37	34	35	69
> 37	87	97	184
Unknown	16	13	29

During the study period, the overall perinatal mortality was as shown (Table 8). Neonatal

Table 7
Birth Weight and Gestation

BirthWeight (gm)	Weeks of Gestation			
	34 (9 pts)	35-36 (29 pts)	37-38 (72 pts)	39-40 (27 pts)
< 1800	2	--	--	--
1501 - 1800				
1801 - 2000	4	2	3	--
2001 - 2500	3	8	10	2
2501 - 2800	--	8	24	4
2801 - 3000	--	3	5	3
3001 - 4000	--	8	29	17
> 4000	--	--	1	1

Table 8
Perinatal Loss/Fetal Outcome

Fetal outcome	Period of study		Total
	1917 to 1983	1984-1987	
Live births	124	129	253
Stillbirths	8	—	8
Neonatal death	11	1	12

Perinatal mortality 7.8%

Table 9

Neonatal Complications		
Complication	Total No. Pts 137 1977 to 1984	
	No.	%
Hyperbilirubinemia	31	25
RDS	13	10.4
Birth Asphyxia	12	9.9
Hypoglycemia	10	8.1
Congenital anomaly	5	4.0
Others	26	21.0

complications were noted in 74.4% of newborn (Table 9). In addition, a low incidence of neonatal morbidity was achieved. Despite the improvements and increased experience in obstetric, medical and neonatal care, perinatal mortality continues to be higher in the diabetic than that observed in the general population.

References

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