A STUDY OF DIABETES MELLITUS IN PREGNANCY OVER 8 YEARS

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SUMMARY

Seventy-eight pregnancies complicated by diabetes mellitus in 57 mothers were managed from 1984 to 1992 in our Institute. All of them were treated with diet control and insulin. Intrauterine foetal death occurred in 20% of the pregnancies, pre-eclampsia and preterm labour in 14% each and spontaneous abortion and polyhydramnios in 10% each. Significant urinary tract infection was found in 10% of pregnancies. The incidence of caesarean section was about 66%. The occurrence of congenital anomalies in the newborn was about three times that of general population. There was one maternal death (1.88%) and 15 (23.4%) perinatal deaths in this group of patients.

INTRODUCTION

Diabetes occurring in pregnancy is becoming a fairly common problem and its management poses a challenge to the internist, obstetrician and paediatrician. This retrospective analysis of diabetic pregnancies was undertaken to evaluate and improve the management of diabetic pregnant mothers.

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MATERIALS AND METHODS

All the diabetic pregnant patients managed in the Department of Obstetrics & Gynaecology, Jipmer, Pondicherry from January 1984 to June 1992 were studied by case sheet analysis. Gestational diabetes was diagnosed by doing an Oral Glucose Tolerance Test using O'Sullivan's criteria.

The insulin dose of diabetics was adjusted by frequent 24 hour glucose profile. The

patients were managed by a tea consisting of physician, obstetrician, ophthalmologist, dietician, paediatrician and anaesthesiologist. Apart from clinical parameters, ultrasound and foetal monitoring were used in assessing foetal well being. Except for a few well controlled patients who were treated as outpatients most of patients were hospitalised for the major duration of pregnancy.

OBSERVATIONS

During the period of study, there were 78 pregnancies managed in our department in 57 diabetic mothers. Four patients left the hospital against medical advice. Two patients had termination of pregnancy in first trimester. One patient expired of ketoacidosis in the second trimester. None of the patients was registered in prepregnant state. Ninety-three percent were registered after the 9th week of gestation.

Most of the patients belonged to Classes A and B of White's classification.

Table I

Mode of Therapy (n=57)

Mode	No.
1. Diet only	14
2. Diet + insulin	43
3. Oral hypoglycemic agents	0*

* Ten patients were changed from oral hypoglycemics to insulin at first visit.

Diet and insulin was the treatment in 43 of the patients. Oral hypoglycemic agents were changed to insulin in 10 patients (Table I).

Pre-eclampsia and intrauterine death were the commonest obstetric complications, spontaneous abortion, preterm labour and

Table II

Obstetrical complications in diabetic pregnancies (n=78)

Complication	No. of patients	Percentage
1. Spontaneous abortion	7	9.4 (7.\/75*)
2. Pre-eclampsia	10	14.7 (10/68@)
3. Intrauterine death	13	20.3 (13/64§)
4. Preterm labour	9	14.0 (9/64§)
5. Polyhydramnios	7	10.9 (7/64§)

* 2 patients had MTP and 1 patient expired
@ Pregnancies continued till 28 weeks or more
§ 5 patients left against medical advice

hydraminos being others (Table II).

Urinary tract infection was a problem of diabetes. Ketoacidosis occurred in 5 patients of whom one expired (Table III).

Caesarean section was liberally used accounting for roughly two-thirds of the deliveries. Of these many were done as emergency. The mode of delivery in our

Table III

Complications of diabetes in pregnancy (n=57)

Complication	No. of patients
1. Diabetic retinopathy	2
2. Diabetic neuropathy	3
3. Ketoacidosis	5£
4. Urinary tract infection	8
5. Postoperative wound infection	4
6. Cellulitis	2
7. Abscess (alveolar gluteal leg)	3
8. Diabetic foot	1

£ Out of 5 one patient expired.

Table IV

Mode of delivery (n=64)

Mode		No. of patients
1. Spontaneous vaginal delivery		19
2. Lower segment caesarean section		42
Elective	16	
Emergency	26	
3. Forceps delivery		1
4. Vacuum extraction		1
5. Internal podalic version and breech extraction (Transverse lie with poly-hydramnios)		1

patients is shown in Table IV.

One-fifth of the pregnancies resulted in stillbirths. Transient tachypnoea of newborn, macrosomia, prematurity and malformations were the other neonatal associations (Table V).

There was one maternal death (1.88%) and 15 perinatal deaths (23.4%) (Table VI).

DISCUSSION

The incidence of the diabetes complicating pregnancy during the study period in our institution was 0.25%. The incidence reported by some other workers varies from 0.1% to 12.3% (Hadden, 1980; Cunningham et al, 1989).

About one-fourth of our patients were treated by diet control. Those who were on oral hypoglycaemic agents were changed to insulin on booking in our institution. Though there are reports that oral hypoglycaemic agents can be safely continued throughout pregnancy (Coetzee and Jackson, 1986), we prefer to manage our

Table V

Foetal outcome in diabetic pregnancies (n=64)

Neonatal complication	No.	Percentage
1. Stillbirths	13	20.3
2. Congenital malformations	6	9.37
3. Prematurity	9	14.0
4. Macrosomia (4000 gms)	8	12.5
5. Hyperbilirubinemia	3	4.7
6. Hypoglycemia	2	3.1
7. Transient tachypnoea	12	18.8
8. Hyaline membrane disease	0	0

Table VI

Maternal and perinatal outcome

1. Maternal mortality	1/53* x 100 =	1.88%
* 4 patients left against medical advice.		
2. Perinatal mortality	15/64* x 100 =	23.4%
* 64 pregnancies continued beyond 28 weeks.		

pregnancy diabetics with diet and insulin.

Liberal use of caesarean section is the general trend in the obstetric management of diabetic pregnancies. We had two-third of our mothers delivered by caesarean section. The incidence of caesarean section in U.K. survey of Diabetic pregnancy is 58%. Most of the caesarean sections were done for recurrent foetal loss or cephalopelvic disproportion because of macrosomia.

It is generally accepted that congenital malformations are more common in diabetic pregnancies. There is wide variation in the incidence reported by various authors. We found an incidence of 9.37% as against the incidence of 3.66% malformations among all births in our hospital.

Hyaline membrane disease, surprisingly did not occur in any of the newborns born to diabetic mothers. Transient tachypnoea of newborn, on the other hand was a common complication.

According to Barnes (1986), maternal mortality does not exceed 0.5% from all causes; but in our series, maternal mortality was 1.88%.

The perinatal mortality of 23.4% is very high particularly when compared to reports from developed centres, e.g. 4% (Coustan et al, 1980) and 3.9% (Martin et al, 1987).

REFERENCES

1. *Barnes Cyril G. Medical Disorders in Obstetric Practice, 4th edn. (Indian). CBS Publishers & Distributors, Delhi, 1986, pp 29-295.*
2. *Goetzee EJ, Jackson WPU. The management of noninsulin dependent diabetes during pregnancy. Diabet Res Clin Pract 1 : 281-287, 1986.*
3. *Coustan Dr. Berkowitz RL, Hobbins JC. Tight metabolic control of overt diabetes in pregnancy. Am J Med 68 : 845, 1980.*
4. *Cunningham FG, MacDonald PC, Gant NF. William's Obstetrics, 18th edn. International edition, 1989, p 818.*
5. *Hadden Dr. Diabetes Care 3 : 440, 1980.*
6. *Martin FIR, Health P, Mountain KR. Med J Aust 146; 187, 1987.*