

DIABETES MELLITUS AND WOMANHOOD

by

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Gynaecological and obstetrical aspects of diabetes mellitus are well-known to the specialists in the fields of obstetrics and gynaecology. However, the exact incidence and the danger to the mother and to the baby are not worked out in India in greater detail. In this paper, I wish to present before you an early report of the work which we have started.

This is a study of histories given by 100 diabetic women, attending the Diabetes Clinic at the Shree Sayaji General Hospital and Medical College, Baroda, under care of the author. The purpose of this preliminary report is to give an idea of obstetrical and gynaecological aspects of diabetes from a physician's point of view. It is also hoped that I shall be able to get some comments and suggestions from obstetric and gynaecological specialists and they will help me in my further study.

In our Clinic, there are about 40% female patients. Although, from the start of the clinic, we have seen about 300 female patients, this study is an analysis of cases of 100 serial and unselected women. Each of the patients

was questioned on a set proforma, enquiring about various details. The histories were collected by the students of the obstetric and gynaecological department. This study is, therefore, essentially retrospective.

In order to make our findings significant, a series of 100 non-diabetic women were taken as "control" group, and their histories were recorded on the same lines. "Control" women were selected from the female attendants of hospital patients. This assured us that our controls belonged to the same socio-economic group. Moreover, it was decided not to take the hospital patients themselves because the illnesses for which the patients come to the hospital might significantly affect the observations. We had also made sure that controls were not diabetic themselves nor that they had any known diabetic in their family. All the control cases were selected in such a way that the distribution of cases in each five year age period was the same as in diabetic series.

Results and Discussion

Distribution of cases in five year age groups in diabetic series is given in Table I.

Average age is 43.3 years in both series. In diabetic women, the mean age at detection of diabetes is 41.0 years and the mean duration of diabetes is 2.3 years.

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TABLE I
Age Group of Diabetic Women

Years	No.	Years	No.
5-9	1	40-44	21
10-14	1	45-49	19
15-19	0	50-54	17
20-24	2	55-59	9
25-29	2	60-64	7
30-34	5	65-69	2
35-39	12	70-74	2

Total 100 cases

Menarche

Reliable information about the age at menarche was obtained in 63 diabetic women and in 85 controls. The mean age at menarche worked out at 14.65 years in diabetic and 14.9 years in control groups. More details are presented in Table II.

It is apparent that there is hardly any difference between the two groups as regards the mean age or the peak age of the starting of menstruation.

Menstrual Cycles

On analysing the menstrual cycles, we find what is shown in Table III.

This table shows clearly that 59% of the diabetic women as compared to 82% of their age-matched controls had regular periods. No special rule

TABLE III
Menstrual Cycles

Menstruation	Diabetics	Controls
Periods not started	2	2
Periods regular	59	82
Sudden change in rhythm	21	13
Periods very irregular	13	3
Data not available	5	0
Total	100	100

can be laid down but one can say that, in general, periods are more often irregular with diabetic women.

On studying the women who had regular periods, the data of the cycles are as shown in Table IV.

There is virtually no difference between the two groups. There is a very slight difference in the range of both the duration of menstrual flow and the duration of the cycles, being wider in diabetic women.

Sudden change in menstrual cycle from one habit to the other habit, both falling within normal range, was met with more often in diabetics than in controls. However, this change in the rhythm had no time relationship with the probable age at the onset of diabetes, or any phenomenon related to diabetes, e.g. the occurrence of complications or the grade of severity of diabetes. The change was earlier

TABLE II
Age at Menarche

Age-years	Not started	11	12	13	14	15	16	17	18	19	20	Total
Diabetic women	2	0	4	12	13	15	10	4	2	1	—	63
Control women	2	1	7	12	16	18	15	5	6	1	2	85

Mean age Diabetics 14.65 years
Controls 14.90 years

TABLE IV
Regular Periods

		Diabetics 59	Controls 82	
Flow Days	All cases	4.2 1-9	4.2 1-8	Mean range
	Variations in one	1.33 6	1.1 3	Mean max.
Cycle Days	All cases	27.9 20-30	29.4 24-30	Mean range
	Variations in one	2.4 10	2.0 8	Mean max.

in 8 cases, later in six and roughly coinciding with the onset of diabetes in 7 cases.

In the 13 cases with irregular periods, the irregularity had no fixed pattern and it is not possible to pass any comments or draw any conclusions from them.

Menopause

The menstrual status at the time when these cases were first seen is given in Table V:

TABLE V
Menstrual Status

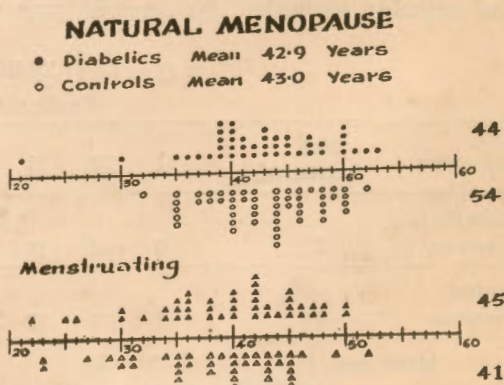
	Diabetics	Controls
Not started	2	2
Menstruating	40	41
? Menopause	5	3
Induced menopause	9	0
Natural menopause	44	54
Total	100	100

In 5 diabetics and 3 controls, amenorrhoea was of less than six months' duration and we cannot definitely say whether they had actually reached menopause.

Menopause was induced in 9 diabetic women but in none of the con-

trol cases. This again speaks for more frequent irregularities around the menopausal age which led to the decision of giving an induced menopause in these diabetics. We are not in a position to answer the question whether destruction of ovaries in a diabetic woman increases or decreases the insulin requirement or, in other words, the severity of diabetes.

The mean age at natural menopause was 42.9 years in diabetics and 43 years in controls. The scatter of their ages is given in Fig. 1 below. This figure also gives a scatterogram of women who are still menstruating and had not reached menopause at the time of the study.



The scatter of age at menopause is slightly wider in diabetic than in non-diabetic women.

Fertility

The fertility as judged by the number of pregnancies that these women underwent is given in Table VI.

TABLE VI
Fertility

	Diabetics	Controls
Menstruation not started	2	2
Nulliparae	5	5
Number of women	93	93
Number of pregnancies	641	575

These figures represent the true fertility because none of these women in either group was known to be using contraceptives. There was one young widow who was diabetic but otherwise all of them who had reached adulthood were married and living with their husbands.

There were 5 nulliparae on either side which means that, in the cases we studied, diabetic women were not showing higher incidence of sterility.

Ninety-three women had 641 pregnancies in the diabetic group and 575 pregnancies in the control group. The difference of 56 may, at first sight, make us feel that diabetic women were more fertile. But when we come to discuss the abnormal conceptions, we will show that diabetic women had often had difficulties which resulted in early termination of the pregnancies. This means that they were ready earlier for the next conception. We are, therefore, of the opinion that the diabetic women have the same fertility as the controls.

Fate of Pregnancies

The course that the conceptions took in diabetic and control women is given in Table VII.

TABLE VII
Fate of Pregnancies

	Diabetics		Controls	
Preg-nancies	641		575 (+4)	
Normal	489	76.3%	495	86.1%
Abnormal	152	23.7%	80 (+4)	13.9%
Baby lost	124	19.3%	64 (+2)	11.1%
Baby alive	28	4.4%	16 (+2)	2.8%

A total of 23.7% followed an abnormal course in diabetics as opposed to 13.9% in controls. This, by itself, shows that pregnancy is a definite hazard in a diabetic woman, or, in other words, when a diabetic woman becomes pregnant, she should expect more hazards than a non-diabetic woman.

The foetal loss is 19.3% in diabetics as against 11% in controls in our series. It is shown that the improved control of diabetes due to modern advances has reduced the maternal mortality much more than the foetal mortality. There was no incidence of multiple pregnancies in diabetics but there were 4 twin pregnancies in controls. This difference is not significant in our series because the series itself is small. But, it is suggestive and it will be interesting to know if it is borne out in a larger study. The difficulties that were met with in abnormal conceptions are shown in Table VIII.

TABLE VIII
Fate of Abnormal Conceptions

Baby		Controls No.		Diabetics No.	Baby	
Alive	Lost				Lost	Alive
—	43	43	Abortions & mis- carriages	83	83	—
6	—	6	Toxaemias	14	6	8
2	2	4	Premature delivery	20	5	15
6	—	6	Abnormal labours	10	5	5
—	5	5	F.T.S.B.	13	13	—
—	12	12	F.T.N.D.—died soon	12	12	—
2 + 2	2 + 2	4 + 4	Twins	—	—	—
16 + 2	64 + 2	80 + 4		152	124	28
2.8%	11.1%	13.9%		23.7%	19.3%	4.4%

The major difference is in abortions and miscarriages which occurred 83 times in diabetic women as opposed to 43 in controls.

Toxaemias occurred more often in diabetics and they were more severe, often fatal. Similarly, incidence of premature deliveries, abnormal labours and still-births is higher in diabetic than in control group. These facts are well-known to the obstetricians but it is interesting to note how much it is affected by the existence of diabetes.

Abnormal labours were met with more often in diabetic patients as seen in Table IX.

It is evident that the abnormal labours were more often associated with foetal loss.

In the present study, we cannot say anything about the maternal mortality due to diabetes. This is because our clinic has not run long enough to get the opportunity of observing a good number of pregnancies after the patients have registered with us.

Birth Weights

Reliable information of birth weights of babies in previous pregnancies was available only in a few instances. The data are given in Table X.

TABLE IX
Abnormal Labours

Baby		Controls No.		Diabetics No.	Baby	
Alive	Lost				Lost	Alive
—	—	—	Prolonged labour ..	4	—	4
1	—	1	Breech presentation ..	1	1	—
—	—	—	Rupture uterus ..	1	1	—
3	—	3	Forceps deliveries ..	1	1	—
2	—	2	Caesarean section ..	3	2	1
6	—	6		10	5	5

TABLE X
Birth Weights

	Diabetics	Controls
Data available	21 babies	46 babies
Weight above 7 lbs.	17 babies	9 babies
Maximum	15-0	10-0
Birth-weights of		
F.T. babies	Mean	5-12.5
500 serial	Max.	11-10
S.S.G.H.	Min.	2- 2

Babies weighing more than 7 lbs. were met with more often in diabetic mothers. The record figure is 15 lbs. A study of birth weights of babies in 500 serial full-term deliveries of non-diabetic mothers in our hospital has given a mean figure of 5 lbs., 12.5 ozs.

Summary

A study of retrospective obstetric and gynaecological histories of 100 diabetic women is presented and compared with carefully selected 100 controls. There was no difference in age at menarche. Menstrual irregu-

larities were met with more often in diabetic women. There was a higher incidence of induced menopause in diabetics, but the age at spontaneous menopause was the same in both groups. Fertility was not different in the two groups. Abnormal pregnancies, abnormal or interfered labours and foetal loss were significantly higher in diabetic group. The study is continuing and we hope to give more data collected in our clinic.

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