

HEART DISEASE COMPLICATING PREGNANCY

(Analysis of 160 Cases—5 Years Study)

by

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Introduction

Heart disease remains an important cause of maternal death. The majority of women with cardiac disease can tolerate pregnancy successfully with little or no deterioration of their condition. However, in these patients pregnancy can introduce special therapeutic problems and may threaten well being and even the life. Eventhough in recent years with good antenatal care, availability of antibiotics and medical treatment of heart disease, the prognosis in these cases has improved. Yet heart disease is one of the most serious condition with which obstetrician has to deal with.

Diagnosis: The changes due to hyperdynamic state accompanying pregnancy and mechanical effects of gravid uterus make the diagnosis of heart disease difficult. Burwell and Metcalfe (1958) have summarised the criteria for the diagnosis as—(1) Presence of a diastolic murmur, (2) Cardiac enlargement on X-ray examination, (3) Systolic murmur of grade III intensity and (4) Presence of a severe arrhythmia.

The functional capacity of these patients has been standardised by the criteria committee of the New York Heart Association and has been graded from grade I to grade IV.

Material and Method

In the present study 160 cases of heart disease during pregnancy were analysed, admitted to Medical College Hospital Aurangabad during January 1976 to December 1980. Those cases who were attending antenatal clinic were checked for dyspnoea, tachycardia, oedema and U.R.I. in consultation with cardiologist. Hospitalization was done at term in grades I and II and on the very first visit in grades III and IV.

There was no indication for M.T.P. on heart disease grounds. In 6 cases, first trimester termination was done on demand.

Management: All patients were allowed to go for spontaneous onset of labour. Induction was not done in any case. During labour analgesics were used and observed for the signs of progress and congestive cardiac failure. Prophylactic low forceps application was done in all primiparae. Caeserean section was performed only for obstetric indication. After completion of third stage ergometrine was not given unless there was

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P.P.H. Tubal ligation was the choice of contraception in parous women and was carried out in second week. The use of I.U.C.D. was insisted in primipara and second para.

Observations

During this 5 year period 24,341 deliveries took place with 160 deliveries in 149 cases of heart disease, the incidence being 0.66%.

TABLE I
Parity Distribution

Parity	No. of cases	Percentage
Primipara	96	60.00
Para 1-4	53	33.20
Para 5 and above	11	6.80
Total	160	100.00

TABLE III
Grades of Heart Disease

Functional grade	No. of cases	Percentage
Grade I	11	6.8
Grade II	52	32.5
Grade III	34	21.2
Grade IV	63	39.3

TABLE II
Distribution According to Cardiac Lesion

Cardiac lesion	No. of cases	Percentage
Mitral stenosis	31	19.35
Mitral incompetence	13	8.12
Mitral stenosis and incompetence	85	53.12
Mitral + aortic lesion	4	2.50
Aortic valvular lesion	3	1.87
Mitral stenosis and mitral and tricuspid incompetence	4	2.50
Mitral stenosis + pulmonary hypertension	14	8.15
Congenital heart disease*	6	3.75
Total	160	100.00

* Pulmonary stenosis, 3 cases; A.S.D. 1 cases; P.D.A. 1 case pulmonary stenosis and A.S.D. 1 case.

Discussion

Incidence: In the present series, the incidence of heart disease complicating pregnancy is 0.66%, higher than the incidence reported by other authors (Ashar *et al*, 1970—0.53%; Deshmukh *et al*, 1979—0.55% and Sikdar, 1980—0.42%). One hundred and sixty pregnancies occurred in 149 cases. Ninety-two cases (57.8%) were booked, whereas 68 cases (42.2%) were emergency. Patients in the age group of 20-25 years were 120 (75%), 32 (20%) were in the age group of 26-30 and 8 (8.5%) were above 30 years.

Parity: Sixty per cent of cases were primipara (96 cases), 33.2% (53 cases) were para 1-4 and 6.8% (11 cases) were para 5 and above, while Deshmukh *et al* (1979) showed that 75% of the cases were primipara. Parity did not influence the grading of heart disease.

Type of Lesion: Rheumatic heart disease was of commonest aetiology—154 cases (95%), while 6 cases were of congenital origin. In 29 cases history of rheumatic fever in childhood was available. Rheumatic heart disease also showed a preponderance in the study of

TABLE IV
Mode of Termination of Pregnancy

Mode of termination	No. of cases	Percentage
Induced 1st trimester abortion	6	3.8
Spontaneous 2nd trimester abortion	3	1.9
Premature deliveries	8	5.0
Full term normal delivery	72	45.0
Low forceps delivery	48	30.0
Vacuum application	12	7.5
Assisted breech delivery	3	1.9
L.S.C.S.	5	3.0
Undelivered	2	1.2
Twin delivery	1	0.6
Total	160	100.0

Punjabi (1965) 93% and Fernandes and Parikh (1975) 93.2%. Amongst 160 cases, mitral valve was involved in 137 cases, and aortic valve in 7 cases. Double mitral was the commonest lesion observed in this series i.e. 53.2%. As per Howitt (1971) mitral valve lesion was seen in 80%, mitral and aortic lesion in 5.1% and aortic valve alone was affected in 5%. Pulmonary oedema in pregnancy occurs most frequently in cases with pure or predominant mitral stenosis. Mitral incompetence cases generally tolerate pregnancy well and rarely have any problem.

Grading of Heart Disease: Amongst 160 cases, maximum cases (63-39.3%) were admitted in grade IV, followed by grade II (52-32.5%), grade III (34-21.2%) and grade I (11-6.8%). Twenty-six cases went into grade IV during pregnancy, 5 during labour and 2 in postpartum period. In 27 cases there was history of failure in previous pregnancies.

Complications: Regarding obstetrical complications, 15 had preeclampsia, 12 had anaemia and 2 had hypertension. One patient had history of paraplegia prior to pregnancy who was put on anticoagulant

therapy throughout the pregnancy but omitted during labour. In cardiac complications, 23 developed pulmonary oedema, 5 atrial fibrillation and 15 had respiratory tract infection which precipitated right sided failure. Radiologically, 20 cases showed cardiomegaly, 16 had left ventricular hypertrophy, 2 had pulmonary conus and 73 showed pulmonary congestion.

Pregnancy After Cardiac Surgery: Seven cases were operated for cardiac lesion. Three cases were operated for mitral stenosis, one, two and four years back. Out of these 1 recurred during pregnancy. One had mitral valve prosthesis 2 years back and had 2 subsequent pregnancies. In 1 case, surgery was undertaken during pregnancy at 16 weeks for repeated episodes of pulmonary oedema due to mitral stenosis. Last case was operated for A.S.D. 3 years back.

Mode of Delivery: Out of 149 cases, 45% delivered normally, 30% required forceps who were all primigravidas and 7.5% needed vacuum. There were 11 repeated deliveries, 9 cases twice and one case thrice. Mendelson (1961) stresses the

avoidance of natural child birth and assistance during second stage of labour so that the period of bearing down is shortened as much as possible. Premature deliveries occurred in 5% of cases.

In 5 cases caesarean section was done, the indications being C.P.D. in 3, major degree placenta previa in 1 and threatened rupture of uterus in 1. Two cases died undelivered soon after the admission due to acute pulmonary oedema. In 6 cases first trimester induced abortion was done and in 1 it was combined with tubectomy.

Maternal and Fetal Risks: The maternal risk from heart disease correlates with the severity and functional grading of the disease. In comparison with grades I and II, the maternal mortality rises sharply in grades III and IV as these patients have a diminished cardiac reserve.

There were total 5 maternal deaths. Two died undelivered and one died on 14th postpartum day due to acute pulmonary oedema. Remaining 2 died immediately after delivery within 2 hours due to C.C.F. The incidence being 3.1% in this series is comparable with 3.3% reported by Punjabi (1965). Cardiac disease was responsible for 4.9% of total maternal deaths in this study.

Perinatal mortality rate has increased according to functional grading i.e. 12% in grade III to 31% in grade IV.

Summary and Conclusion

Various aspects of 160 cases of pregnancy with heart disease were studied.

The functional haemodynamic changes of normal pregnancy are aggravated due to the heart lesion which is still a major problem for obstetrician and physician to manage.

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