

HEART DISEASE IN PREGNANCY

(A Study of 80 Cases)

By

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SUMMARY

Heart disease still remains a leading cause of maternal death and is the most common indirect cause of obstetric deaths if chronic hypertension and pre-eclampsia are included. Most cardiac patients may be allowed to carry through pregnancy and if properly assisted, suffer no deterioration in their condition. On the basis of their functional capacity, the course and management of the patient is well guided throughout pregnancy, delivery and puerperium.

We are presenting herewith our experience and analysis of 80 patients of heart disease with pregnancy seen over a period of four years: 1984-87. Each case is presented with special reference to type of lesion, clinical features, medical, surgical and obstetric management, maternal and perinatal mortality and morbidity, thus, making it a comprehensive study.

Introduction

There are several reasons why health professionals are concerned with maternal cardiovascular physiology and pregnancy. In the eyes of the physician, pregnancy comes as a temporary complication in the disease process, a process which in any case is going to shorten life. But same is not the case with an obstetrician for whom management of pregnancy associated with heart disease is of prime importance. Cardiac lesions and pregnancy both may affect each other adversely. Since pregnancy is a reversible state of altered cardiovascular physiology, the

patient serves as her own control when effects of pregnancy on heart disease are being studied. With the better understanding of the cardiovascular physiology, better medical treatment and advent of cardiac surgery, it is possible for a woman to reach the reproductive age and go through pregnancy and labour without much deterioration in her cardiac status which was not possible two decades ago.

Material and Methods

In the present series, it is proposed to analyse the detailed case studies of 80 patients of heart disease with pregnancy seen over a period of 4 years; 1984-87. These cases include 75 booked cases seen in the antenatal ward and antenatal

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clinic, together with 5 cases which were admitted as emergency cases and were first seen during delivery or postnatal period. The cardiac grade was determined during the first visit or first four antenatal months if possible, because further management depends upon the grade in which she is placed. All the cases were jointly seen by the obstetrician and the cardiac physician and were fully investigated.

Observation and Analysis

There were 28,585 live births in the period 1984-87 giving incidence of 0.2798%. The distribution of patients according to the age and percentage of decompensation was as shown in Table I. Though the maximum number of patients belonged to age group 20-25 (60%), the rate of decompensation was maximum in age group 26-30 years (33.3%). The

distribution of patients according to parity and rate of decompensation was as shown in Table II. As regards past obstetric history, there was history of abortion and preterm labour in 12 (15%) and 9 (11.25%) respectively. Only 13 (16.25%) gave past history of forceps or vacuum delivery. Past medical history revealed history of haemoptysis in 7 (8.25%), cardiac failure in 3 (3.75%), rheumatic fever in 2 (2.25%). Four (5.1%) gave history of mitral valvotomy. For the rest, there was no past history suggestive of heart disease during previous pregnancy or during non-pregnant state. The symptomatology of these patients during present pregnancy was as shown in Table III. Sixty per cent of the patients had dyspnoea and none of these were known to have asthma or any chronic pulmonary diseases. Out of 10 (12.5%) patients with cough, only one had pulmonary oedema and was

TABLE I
Age Distribution

Age Group	No. (%)	No. of cases Decompensated	(%)
Less than 19	2 (3.5)	Nil	—
20-25	48 (60)	10	(20.8)
26-30	24 (30)	8	(33.3)
31-35	5 (6.25)	1	(20)
36 and above	1 (1.25)	—	—
Total	80 (100)	19	(23.75)

TABLE II
Parity Distribution

Parity	No. (%)	No. of cases Decompensated	(%)
0-1	38 (47.5)	4	(10.52)
2-3	33 (41.25)	8	(24.24)
4-5	6 (7.5)	4	(66.66)
6 & above	3 (3.75)	3	(100)
Total	80 (100)	19	(23.75)

treated accordingly. Three patients had congenital heart disease with cyanosis. Table IV shows physical signs. There were 20 patients with tachycardia (pulse more than 120/min). All of them were associated with failure. In 3 of them pulse was irregular. Out of 60 patients with normal pulse rate, 10 showed other signs of failure such as oedema, hepatomegaly, raised J.V.P. and pulmonary crepitations etc. In 48 patients, first heart sound was loud at the apex with mid diastolic murmur and was diagnosed as having mitral stenosis. Thirty patients showed auscultatory signs of pulmonary hypertension with loud pulmonary component of second heart sound with diastolic shock. Eleven patients had mitral regurgitation characterised by soft first heart sound at apex with pansystolic murmur in the apical region radiating to left axilla. There were 6 cases with combined aortic and mitral valve lesion (Table V). Grading of the heart diseases was done as per the New York Heart Association. Maximum number belonged to Grade I and II (57% and 71.25%) and were labelled as mild, while 23 (28.75%) belonged to Grade III/IV and were labelled as severe.

TABLE III
Symptomatology

Symptoms	No	(%)
Dyspnoea	48	(60)
Cough	10	(12.5)
Haemoptysis	2	(2.5)
Oedema Feet	7	(8.75)
Cyanosis	3	(3.75)

Past Medical History	No.	%
Haemoptysis	7	(8.75)
Failure	3	(3.75)
Rheumatic Fever	2	(2.5)
Mitral Valvotomy	4	(5)

TABLE IV
Physical Signs

Sign	No.	(%)
Pulse—Tachycardia	20	(25)
Irregular	3	(3.75)
Hypertension	3	(3.75)
Pallor (mod. to severe)	10	(12.5)
Oedema	7	(8.75)
Hepatomegaly	9	(11.25)
Pulmonary Crepts	10	(12.5)
Raised J.V.P.	10	(12.5)

TABLE V

Type of Lesions	No.	(%)
Mitral Stenosis	48	(60)
Mitral Incompetence	11	(13.75)
Mitral Stenosis with Mitral Incompetence	4	(5)
Aortic Stenosis	2	(2.5)
Aortic Incompetence	2	(2.5)
Aortic Stenosis with Mitral Incompetence	3	(3.75)
Mitral Stenosis with Aortic Incompetence	3	(3.75)
Atrial Septal Defect	6	(7.5)
Ventricular Septal Defect	1	(1.25)
Total	80	(100)

Investigations

Usually X-ray chest during pregnancy was not taken, unless it was absolutely necessary (taken with abdominal shield) otherwise it was taken after delivery. In the present series, it was taken in 40 patients. Of them 21 showed cardiomegaly. Pulmonary congestion was present in 30, while in 10 it was normal. ECG was taken in all. Echo cardiography was

done in 20 patients and the clinical diagnosis was confirmed.

Management during pregnancy and labour

All the patients with Grade I/II were treated as outpatients, while Grade III/IV were hospitalised. Delivery was conducted in hospital under close observation. In first stage, patients were kept in bed and oxygen, propped up position were given if necessary. Fifty two had spontaneous vaginal delivery. Second stage was shortened in 26 (32.5%) by forceps or vacuum. LSCS was performed in 2 cases of moderate cephalopelvic disproportion under general anaesthesia. Caesarean section was never performed for heart disease per se. As regards third stage of labour, ergometrine was not given routinely to all after expulsion of placenta.

Outcome of labour and puerperium

The incidence of babies having birth weight less than 2 kg was 25%. Out of 20 babies born with birthweight less than 2 kg, 6 were born to mothers with congenital heart disease. One of the infants born in these mothers also had congenital heart disease. Seven premature babies expired in the intensive paediatric care unit giving perinatal mortality rate as 8.75% (7 out of 80). Thirty seven patients underwent sterilisation under local anaesthesia. Conventional contraception was advised for the rest.

Maternal mortality

There were two maternal deaths giving incidence of 2.5%. Cause of death was tight mitral stenosis in both. In both the patients, the grade of the disease was III/IV respectively.

Discussion

In the present series, 80 cases were studied during a 4 year period 1984-87, giving the incidence as 0.2798%. Incidence in India is less as compared to western countries. Mudliar and Menon give incidence as 0.63%. Other Indian studies give incidence as 0.29% to 0.55% (Venkatraman *et al* 1986, Deshmukh *et al*, 1979). In U.S.A., Mandelson (1961) quotes incidence as 3% in New York. Barnes (1974) gives incidence as 0.43% comparable to incidence in our country. There has been relative increase in the incidence of congenital heart disease as compared to rheumatic heart disease, due to better treatment of rheumatic fever. In our series, there were 7 cases with congenital heart disease and pregnancy. All cases could be treated medically successfully. As regards role of valvotomy during pregnancy, it should be remembered that it is not always successful and has still got a significant mortality (1.5%). There is 5% incidence of restenosis in 5 years and 60% in 9 years (Logan, *et al* 1972). Harken and Taylor (1962) quoted succinctly that any decision regarding surgery or medical treatment must be based on thorough knowledge of risks of surgery. The only indication being very tight mitral stenosis and acute pulmonary oedema under medical supervision. Maternal mortality was 2.5% comparable to various Indian and Western authors (Mudliar *et al* 2.3%, Lewis 2.3%, Barnes 0.43%). Management of these pregnant women with heart disease in our series was done by broadly following the criteria laid down by McAnulty J. H. *et al* (1981) highest priority with health was given highest priority with diagnosis and counselling done cardiologist. Activity recommendation, diet recommendation, infection control and

treatment of stresses was also an integral part of our management guidelines.

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