

# HEART DISEASE IN PREGNANCY

by

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Heart disease is encountered in approximately 1% of all pregnancies. The frequency with which heart disease occurs in pregnant women would naturally vary with the incidence of rheumatic cardiomyopathy in that particular population, because rheumatic heart disease accounts for about 80-90% of all cases of heart disease.

As a result of early detection and surgical management of congenital cardiac defects we see an increasing number of patients with septal defects, Fallots tetralogy, congenital pulmonary stenosis and patients with valvotomies, in the antenatal clinic. Cardiac disease from hypertension contributes to only a few percent of organic forms of heart disease.

## Material and Methods

In our study we analysed 142 cases of heart disease with pregnancy seen in the Obstetrics and Gynaecology Department of the Kind Edward Memorial Hospital, Bombay, between February 1974 and January 1978. The cases were studied with respect to their age, parity, nature of the cardiac lesion, the grading of the disease and the outcome of pregnancy

with respect to the mode of delivery and the weight of the baby. In the puerperium family planning advice was offered, and the acceptance of contraceptives was scrutinised.

## Incidence of Heart Disease

In the present series during the 4 years from 1974-1978 the incidence was 0.55%. Pinto Rosario and Kuthalia (1975) give an incidence of 0.46% at the Lady Hardinge Medical Hospital, New Delhi between 1969 to 1973. Of the 142 cases 92% were booked cases and were followed up in the antenatal clinic, whereas 8% were emergency cases.

TABLE I  
Incidence of Heart Disease

Authors	Incidence
Mendelson (1960)	3.6%
Burwell, Mecalfe	2.3%
Pinto Rosario and Kuthalia	0.46%
Masani (1957)	0.2%
Mudaliar and Menon (1967)	0.9%
Present series	0.55%

Analysis of the clinical profile of the patients showed that more than 75% of the patients were in the age group of 20 to 30 years.

The parity distribution showed that almost 75% of the patients were either para 0 or para I, and only 11% were third paras.

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Pinto Rosario and Kuthalia (1975) gave a similar percentage, and found most of the grand multiparas in Grade IV.

An evaluation of their cardiac lesions revealed that rheumatic heart disease was the commonest single responsible factor. In western countries the relative incidence of congenital heart disease is increasing because of elimination of streptococcal infections and rheumatic fever at an early stage in children. As a result the total incidence of heart disease fell at the Queen Charlottes Hospital during the period 1968-1971 to less than one quarter of the figure for 1947-53.

out on the basis of the New York Heart Association.

TABLE III  
Grades of Heart Disease

Grade	No. of patients	Percentage
I	89	62.67
II	31	21.83
III	10	7.04
IV	2	1.40

Pinto Rosario and Kuthalia (1975) found that 76.5% of the patients above the age of 30 belonged to Grade IV. One

TABLE II  
Distribution of Various Cardiac Lesions

Mitral Stenosis	69
Mitral incompetence	18
Mitral stenosis with incompetence	14
Hypertensive heart disease	4
Congenital heart disease	21—ASD-14, PDA-5, PS-2.
Mitral valve lesion with aortic valve lesion	6
Aortic valve lesion	10

ASD = Atrial septal defect

PDA = Patent ductus arteriosus

PS = Pulmonary stenosis

Eighteen patients had undergone surgical correction for mitral stenosis, of these 4 patients had restenosis and 5 had been over corrected with the development of mitral incompetence.

Two patients had a positive VDRL reaction. However, these patients had aortic stenosis, a lesion which is not caused by syphilis. Pinto Rosario and Kuthalia (1975) reported an incidence of 97.2% rheumatic heart cases with 93% mitral stenosis as the predominant single mitral lesions. They found congenital lesions in only 2.1% of cases and none due to hypertension or syphilis.

In order to estimate the functional status of the heart, grading was carried

third of the deaths in their series occurred in this group. In our series 8% of the patients were in grade III or IV and 75%

TABLE IV  
Mode of Termination of Pregnancy

Mode of M.T.P.	No. of cases	Percentage
M.T.P.	11	7.74
Full term normal delivery	52	36.61
Spontaneous abortion	2	1.40
Premature delivery	23	16.19
Forceps delivery	47	33.09
L.S.C.S.	2	1.40
Undelivered	1	0.7
Vacuum	4	2.80
Maternal deaths	4	2.8

of the deaths occurred in this group. Over 60% of our patients were in Grade I.

While scrutinising the mode of termination of pregnancy in these patients we found that almost 70% had a normal vaginal delivery, 35% had forceps delivery or vacuum extraction and only 1.4% had operative delivery. The general incidence of caesarean operation in the KEM Hospital during these 4 years period was 3%. Patients with heart disease usually have easy deliveries, because not only are large number of deliveries pre-term, but babies are usually small for date. Sixteen per cent of the deliveries in heart patients were premature, while the incidence of premature deliveries in the K.E.M. Hospital (upto 2 kgm birth weight) during this period was only 6%. There were 2 neonatal deaths and one still birth. Hemlatha and Kunders (1972) noted 62.9% having spontaneous vaginal deliveries while Pinto Rosario and Kuthalia (1975) noted only 55.5%.

TABLE V  
Family Planning Advice

Method	No. of cases	Percentage
Tube ligation	19	13.38
Vasectomy	2	1.40
I.U.C.D.	53	37.32
Oral contraceptives	0	—
Condom	28	19.7
None	40	28.16

Although the importance of family planning was stressed, patients who decided to follow permanent methods of contraception were only 14%. An I.U.C.D. was preferred by 37.3% and almost 47% of the patients decided to use conventional contraceptives or felt that they could avoid pregnancies without contraceptives.

Oral contraceptives were not prescribed to any of the patients for fear of throm-

boembolic phenomena, and their hypertensive, water retaining and hyperlipidemic properties.

#### Discussion

Pregnancy is an event of added stress in a cardiac invalid. Besides the increased chances of developing infections, recrudescence of rheumatic fever and cardiac decompensation, obstetric problems like miscarriage, intrauterine death and pre-eclampsia if and when they occur often add the last straw in tipping the balance in the wrong way.

In our series we had 4 patients who died directly as a result of pregnancy complicated by heart disease. The first patient who died was suffering from primary pulmonary hypertension and after an induced abortion of 20 weeks with 50% intra-amniotic glucose died in the puerperium. The second patient who died in the antenatal period was suffering from pulmonary hypertension following mitral stenosis with incompetence. Fallots tetralogy accounted for the third patient and a tight mitral stenosis with jaundice were given as causes of death in the fourth patient.

Eisenmenger's syndrome, Fallots Tetralogy and primary pulmonary hypertension are life threatening conditions. These patients should be advised to avoid pregnancy and in early pregnancy in these cases, a therapeutic abortion is often advised by the cardiologist. Out of 4 deaths, 2 died due to primary pulmonary hypertension and 1 due to Fallots tetralogy. In our series we had no case of Eisenmenger's Syndrome.

Advances in the field of cardiothoracic surgery have enabled patients with severely diseased valves to be fitted with prosthetic valves. Such patients require anticoagulant therapy. In early preg-

nancy heparin is the anticoagulant of choice, mainly because of teratogenic effects caused by some of the oral anti-coagulants. During labour the early reversible action of heparin is preferable to the uncertain effect of coumarin derivatives. It is ideal to switch from coumarin derivatives to heparin at 37 weeks. The side effects of heparin can be easily countered by protamine sulphate. We did not have any case of heart valve prosthesis. Foetal loss was mainly due to prematurity which can be avoided by early admission and adequate treatment. Early detection, supportive therapy and surgical correction whenever possible improves the ability of the affected heart to withstand the burden of pregnancy. The safety of a small family and the necessity of using some type of contraceptive must be impressed on the patient.

#### Summary

One hundred and forty-two cases of heart disease with pregnancy seen in Obstetrics Department, K.E.M. Hospital, between 1974 to 1978 were analysed. Incidence was found to be 0.55%. Rheumatic heart disease was the commonest single responsible factor. Almost 70% had normal vaginal deliveries. Caesarean section rate was 1.4%.

Importance of family planning was stressed. Only 14% went for permanent method of contraception; 28% refused any type of contraceptives. Factors responsible for maternal mortality are discussed.

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