

CARDIAC DISEASE COMPLICATING PREGNANCY, LABOUR AND PUERPERIUM

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SUMMARY

There were 500 cases of cardiac disease among 163, 463 antenatal admissions. Rheumatic heart lesion was found in 82.6%. There were 22 maternal deaths. Congestive cardiac failure and pulmonary oedema were the causes of maternal death in 81.8%.

Introduction

Maternal mortality due to heart disease complicating pregnancy, labour and puerperium has shown an alarming increase in the study despite the team work done by cardiologist and obstetrician. Improvement of socio-economic status with stress on sanitation and hygiene, early active treatment of rheumatic conditions with prolonged antibiotic cover to prevent recurrence, early detection of cardiac lesions, proper diagnosis and management with team work, increased use of closed mitral valvotomy when feasible by cardiothoracic unit, before, during and after pregnancy, temporary help in the home during pregnancy and puerperium when needed will go a long way in the reduction of maternal mortality.

The necessity for attaching cardiologist to the maternity institution for proper

diagnosis, management and treatment of cardiac emergencies is likely to bring down the maternal mortality, is being stressed.

Maternal death due to cardiac disease in our institution was responsible for 15.9% and 14.6% among total maternal deaths for the years 1982 and 1983 respectively.

Material and Methods

The present analysis consists of 500 cases of cardiac disease complicating pregnancy met in Women and Children Hospital, Egmore, Madras over a period of 5 years from 1979 to 1983. The cases were studied with respect to age, parity, nature of cardiac disease, grading of failure and outcome of pregnancy, mode of delivery and foetal outcome.

Analysis and Discussion

During this period there were 1,65,463 total admissions of which 500 cases were cardiac patients. Incidence was 0.31%. Out of 83,309 total deliveries, 389 cases

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were cardiac patients, the incidence being 0.46%. This incidence is comparable to 0.46% of Pinto Rosario (1973), 0.53% of Asher *et al* (1970) (Table I). The incidence of heart disease is halved in our institution from 0.97% to 0.46% (Mudaliar and Menon, 1978).

TABLE I
Incidence of Heart Disease by Different Authors

S. No.	Authors	%
1.	Pinto Rosario (1973)	.25
2.	Motashaw, N. D. (1979)	1
3.	Present series (1983)	.31

Socio-economic Status

Ninety-two per cent of our series came under low socio-economic group. These patients did not have proper antenatal check up and there was no adequate spacing or sufficient rest at home during pregnancy.

Age

There were 443 cases (88.6%) in the age group between 15-30 years, 346 cases (69.2%) in the age group between 21-30 years and 97 cases (19.4%) were in the age group between 15-20 years. Fifty-seven cases (11.4%) were above 30 years. The oldest was 42 years old. Analysis of 8 patients in the older age group (36-42 years) showed that 5 cases were symptomfree and 3 had previous history of failure. Maximum number of deaths were between 20-30 years i.e., 17 patients (77.5%).

Gravidity

There were 130 cases (26%) of primigravida (including 2 unmarried patients) and 4 died among this. Fernandes and Parikh (1978) observed 17% primi and

22% were 5th and higher gravidae in their series as against 26% and 12% in the present series. Three hundred and forty eight cases (69.6%) were 2nd to 5th gravida. Twenty-two cases (4.4%) were above V gravida and there were 6 deaths in this group.

Functional Class

More than half the patients admitted (334 cases—66.8%) had grades III and IV heart disease.

Type of Lesion

Analysis of the cardiac pathology in patients in this series shows a preponderance of rheumatic heart disease forming 82.6% (413 cases). Most workers in this field have reported that rheumatic heart disease forms the major cause of heart disease (Panjabi 1966—83% and Parvathi and Anjaneyulu 1976—90%).

Among the different valvular lesions, the incidence of congenital heart disease was 16% (80 cases) and acquired was 84% (420 cases). Among the acquired valvular lesions, mitral valve lesions were found in 378 cases (75.6%) of which mitral stenosis alone were 278 cases (55.6%) (Table II). In his institution the acquired heart disease decreased only from 89.86% to 84% and congenital heart disease increased from 10.14% to 16% (Mudaliar and Menon, 1978).

Complications During Pregnancy

Tables III and IV show the associated complications during pregnancy and associated complications of heart disease respectively. Anaemia, toxæmia and various infections modify the prognosis in heart disease.

TABLE II
Type of Heart Lesion

Type of Heart Lesion	No. of cases	Percentage 500 cases
1. CONGENITAL		
(i) Atrial septal defect	22	4.4
(ii) Ventricular septal defect	20	4.0
(iii) Patent ductus arteriosus	18	3.6
(iv) Pulmonary stenosis	17	3.4
(v) Fallot's	1	0.2
(vi) Double chambered heart	1	0.2
(vii) Eisen Mengers Syndrome	1	0.2
	80	
2. ACQUIRED		
(i) Mitral stenosis	278	55.6
(ii) Mitral stenosis with Regurgitation	94	18.8
(iii) Mitral regurgitation	6	1.2
(iv) Aortic stenosis	8	1.6
(v) Aortic stenosis with aortic incompetence	27	5.4
(vi) Ischaemic heart disease	2	0.4
(vii) Cardiomyopathy	4	0.8
(viii) Partial heart block	1	0.2
Total	420	

TABLE III
Complications During Pregnancy

Complications	No. of cases	Percentage
Anaemia	12	2.4
Pre-eclamptic Toxaemia	1	0.2
Hydramnios	5	1.0
Respiratory Infections	23	4.6
Recurrence of Rheumatic fever	22	4.4
Pyrexia of unknown origin	5	1.0
Rh. negative	9	1.8
Tuberculosis	2	0.4
Diabetes	1	0.2
Jaundice	1	0.2
Antepartum haemorrhage	1	0.2
Bronchial asthma	1	0.2
Malaria	1	0.2
Pelvic infection	2	0.4

TABLE IV
Associated Complications of Heart Disease

Complications	No. of cases	Percentage
Atrial fibrillation	8	1.6
Pulmonary oedema	4	0.8
Pulmonary embolism	4	0.8
Hypertension	2	0.4
Subacute bacterial Endocarditis	1	0.2

Previous obstetric history revealed that 42 cases had abortions and 21 cases had premature delivery, 8 cases had dead born delivery. Eight patients had no prior live birth, 14 cases had undergone lower segment caesarean section during previous pregnancy and 19 cases had failure during previous pregnancy.

Pregnancy following Cardio-vascular Surgery

Forty-one cases (14.74%) of mitral stenosis were operated previously and 10 patients developed restenosis. Closed mitral valvotomy in pregnancy was well tolerated by both mother and foetus. It can be safely performed during various stages of pregnancy, when there is striking clinical disability in all grades as opined by Maraghy (1983). He has found better prognosis with younger age group below 30 years and it is superior to valve replacement. Two PDA cases, 1 Fallot's Tetralogy and 1 double chambered heart were also operated and became pregnant.

Nature of Delivery

While scrutinising the mode of delivery in these patients, 275 (55%) cases had normal vaginal delivery, total duration of labour was less in majority of these cases. Hemalatha and Kundar (1972)

found 62.9% had spontaneous delivery (Table V). Eighty-four patients left the hospital before delivery and 25 patients had abortions.

TABLE V
Nature of Delivery

Nature of delivery	No. of cases
Normal vaginal delivery	275
Forceps	86
Lower segment caesarean section	15
Assisted breech	6
Twins (vaginally and LSCS)	7

Indication for caesarean section and type of lesions are given in Table VI. General anaesthesia was used in all cases. There was no immediate or delayed postoperative complication except one death where Lower Segment caesarean section was done during failure. Eleven patients had lower segment caesarean section with sterilisation. All were done for obstetric indications. Four patients had congenital lesion and rest of them had acquired heart disease.

TABLE VI
Indications for Caesarean Section

Indications	No. of cases
Cephalopelvic disproportion	2
Primi with Breech	1
Previous LSCS with breech	1
Uterine inertia with premature rupture of membranes	3
Foetal distress	3
Previous LSCS with Cephalopelvic disproportion	4
Total	14

Foetal Outcome

Among 389 cases delivered, 262 babies were above 2.5 kg., 134 babies were be-

low 2.5 kg. including twins (7 cases) and lowermost weight was 500 gm. Neonatal deaths were 48 (12.1%). Fourteen mothers died undelivered with foetal loss of 14. Twenty-five patients aborted. There were 6 stillbirths. Perinatal mortality was 54 (13.6%).

Maternal Mortality

There were 22 maternal deaths among 414 patients. Incidence of maternal mortality was 5.3%. Of these 22 cases, 13 (84%) were emergency admissions with failure. Among 22 cases, one was within her teens, 18 patients were between 17-30 years and 4 patients were above 30 years (Table VII).

TABLE VII
Maternal Mortality

Age in years	No. of cases	Percentage
17 years	1	4.5
20-25 years	8	36.3
26-30 years	9	41.2
31-35 years	2	9.0
36-40 years	1	4.5
Above 40	1	4.5

Four of them were primi, 12 patients were between 2nd and 4th gravidae and 6 cases were above 4th gravida (Table XI).

Amongst the 22 patients who died, 21 had mitral valve lesion associated with other valvular lesion. One had tricuspid incompetence. There was no death in congenital heart disease.

Out of 22 cases, 14 died due to refractory to congestive failure treatment and 4 cases died due to pulmonary embolism. Three cases died due to failure and pulmonary oedema and 1 case died due to acute pulmonary oedema. Mitral valvotomy may be an indication for history of embolic episode. Repeated attacks of

acute pulmonary oedema is the usual indication for mitral valvotomy in pregnancy.

Fourteen cases out of 22 cases died in antenatal period. One case died intrapartum while the placenta was getting expelled. Out of 8 patients who had delivered, 5 had normal vaginal delivery, 2 had forceps delivery and one had lower segment caesarean section in failure.

In postnatal cases, 3 died within 12 hours of delivery, 3 died within 1-2 weeks of puerperium. Associated complications were anaemia in 8 cases, atrial fibrillation in 5 cases, pre-eclampsia in 2 cases and intrauterine growth retardation in 2 cases.

Eight antenatal deaths occurred between 28-32 weeks of gestation and 6 patients died before the viability of foetus (28 weeks) was reached.

Family Planning

Out of 389 cases who delivered, 35 had puerperal sterilisation. Eleven cases had sterilisation with lower segment caesarean section. Three cases of puerperal sterilisation were done under general anaesthesia. Two cases were operated after 2 weeks and one case after a month. Amongst congenital heart cases who had sterilisation, one had Atrial Septal Defect and another had Ventricular Septal Defect.

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