

## CARDIAC DISEASE COMPLICATING PREGNANCY

by

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Pregnancy carries an extraordinary risk in cardiac patients. It remains one of the important aetiological factors of maternal deaths in our country till to-day.

### *Material and Methods*

The present analysis consists of cases of cardiac diseases complicating pregnancy met in Eden Hospital, Calcutta over a period of 6 years, 1972 to 1977.

### *Analysis and Discussions*

During this period there were 53,927 total confinements of which 228 were cardiac patients, the incidence being 0.42%.

Other Indian workers also observed 0.2 to 0.35% incidences (Table I).

The incidence of the present series was slightly higher except that of Ashar *et al* (1970).

### *Parity*

Table II shows the paritywise distribution of cases and their comparison with % of hospital admissions.

It has been observed that cardiac diseases amongst multiparas were higher than their hospital admissions. Probably 1st childbirth unmasks the cardiac conditions in some patients. However, Ashar

TABLE I  
*Incidence of Cardiac Disease by Different Authors*

Authors	No. of Total confinements	No. of cardiac cases	Incidences
Masani (1957)	22833	47	0.2%
Punjabi (1965)	24123	60	0.25%
Ashar <i>et al</i> (1970)	22000	120	0.53%
Fernandes and Parikh (1975)	26631	95	0.35%
Present series	53927	228	0.42%

TABLE II  
*Parity Distribution*

Parity	No. of cases	Percentages	Approx. % of hospital admissions of different paras
Primiparae	64	28	36%
Para 1 to 4	146	63.7	56%
Para 5 +	18	8.3	8%

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*et al* (1970) observed a preponderance of primigravidas over their percentage of

hospital admissions. Fernandes and Parikh (1975) observed 17% primigravidas and 22% 5th or higher gravidas in their series against 28 and 8.3% of the present series. Lower incidences in 5th or higher gravidas in this series might be due to the fact that cardiac patients are becoming more and more aware about the risk of pregnancy.

#### Type of Lesion

Rheumatic heart disease was the commonest lesion in the present series and also in the series of other workers (Table III). Patients with congenital heart diseases rarely survive till they were able to bear children.

bined. Thus rheumatic heart disease was the commonest and mitral valve affections in approximately 90% cases in the present series. Fernandes and Parikh (1975) also opined that mitral stenosis accounted for 80-95% of all rheumatic heart disease associated with pregnancy in most of the series and in their series 86.3% patients had mitral valve involvements against 90% of the present series. In the present series, there were 5 (2.2%) cases of congenital heart diseases, 2 A.S.D., 2 V.S.D. and 1 coarctation of aorta. The reported incidences (Table III) of them varied between 3.2 to 15 per cent. In the present series, there were 3 cases who were admitted with severe conges-

TABLE III  
Type of Cardiac Lesion Compared with Other Authors

Type of	Present		by other workers			
	No.	%	Masani	Punjabi	Ashar et al	Fernandes & Parikh
Rheumatic	220	96.4	90	83	79	93.2
Congenital	5	2.2	5	15	12.5	3.2
Others	3	1.4	5	2	8.5	3.4

Amongst these 220 cases of rheumatic lesions, mitral valve was involved in 203 (92.2%) occasions. Aortic valve was affected alone in 17 (7.8%) cases. Thus mitral and aortic valve affections of rheumatic origin were encountered in approximately 90 and 7.4% cases amongst total 228 patients. Mitral stenosis was the significant abnormality in 149 cases (73.3%) amongst these 203. Combined mitral stenosis and incompetence was present in another 51 (25.1%) cases. In 3 cases (1.3%), mitral incompetence alone without any evidence of mitral stenosis was noted. Aortic incompetence was the lesion in all cases of aortic valvular disease excepting 1 where aortic stenosis was com-

plete heart failure, one of them had hypertension, another possibly was suffering from cor pulmonale due to bronchial asthma. However, their cardiac condition could not be determined clearly. In third case no definite diagnosis could be made.

#### Symptom Free Cases

Amongst 64 cases of primiparas, 42 (65.9%) were symptom free, whereas amongst 145 cases of multiparas (II, III and IV) 52 (35%) were asymptomatic. Amongst 19 cases of higher gravidas, 9 cases (46%) cases were practically without any symptoms. Thus it may be assumed that more primiparas are comparatively asymptomatic.



*Decompensated Cases*

There were 13 decompensated cases amongst para 1 (20.3%), 54 (37.2%) amongst cases of para II to IV and 5 cases (26%) amongst higher gravidas, V and above. Thus the percentages of decompensated cases were minimal in primiparas and again dropped in parity of 5 or more. This indicates that perhaps the percentages of decompensated cases increase once the patient has borne one child. The decline in the percentage of decompensated cases in higher gravidas than ordinary multigravidas suggested that perhaps these group of patients had very mild lesions originally. Patients with moderate or advanced lesions probably might have been sterilised according to medical advices or have less longevity to attain very high parity. There was no case of high parity in congenital heart disease group as these patients do not

paratively lower than the usual abortion rate (10 to 12%) of this hospital. Thus the abortion rate does not appear to be higher in them. Spontaneous vaginal delivery occurred in 176 (77%) cases. Prophylactic forceps were applied in 26 (11.4%) cases, most of them were primigravidas. The incidences of applications of prophylactic forceps in terms of patients of this hospital vary in between 7 to 11% during this study period. Caesarean sections were undertaken in 4 cases (1.7%) against 8 to 9% incidences in this hospital in different years. The indications of L.U.C.S. in these 4 patients were cephalopelvic disproportion in 3 cases, 2 primipara and 1 a third gravida. In another case, uterine inertia was the indication in a primipara. Remaining 5 (2.1%) cases died undelivered. The results of outcome of pregnancies in different series have been compared in Table IV.

TABLE IV  
*Outcome of Pregnancy*

Outcome of pregnancy	Present series		Ashar et al	Punjabi
	No. of cases	%	%	%
Abortion	17	7.4	4.1	1.6
S.V.D.	176	77.4	81.6	85.8
L.U.C.S.	4	1.7	1.7	Nil
Died Undelivered	5	2.1	3.5	1.6
Forceps	26	11.4	9.1	10.0

attain higher parities and the incidence of decompensated cases amongst them are much higher. Ashar *et al* (1970) also reported identical observations.

*Results of Pregnancy*

Generally, spontaneous vaginal delivery occurs in cardiac patients as the babies are mostly smaller in size. Pregnancy terminated before viability was reached in 17 cases (7.4%). The rate was com-

*Foetal Outcome*

Amongst 206 patients who delivered after viability of the foetus was reached, 18 had stillborn babies, probably maternal cardiac lesions were the sole cause of these still births, as no other factors seemed to be responsible. Total 11 babies expired in the neonatal period. Thus perinatal mortality was 14.07% in this series. It is the anoxia due to maternal cardiac condition which probably leads to still-



births. Prematurity may be an added factor responsible for both stillbirth and neonatal deaths.

#### *Birth Weights*

The birth weights of babies did not differ much from the average birth weights as observed in this hospital. However, there were 16 babies who weighed less than 2 kg. or were premature according to weight. Amongst these 16, 4 had been delivered at term, though the weight of these babies were below 2 kg. Forty-eight babies were more than 3 kg. of weight at births.

#### *Maternal Mortality*

There were 10 maternal deaths, and the maternal mortality was 4.8%. This rate was somewhat higher than that of Punjabi (1965) 3.3%, Sood and Padmavati (1968) 4%, D'Cruz (1957) 4.5% but lower than that of Konar *et al* (1975) 6.7%, Fernandes and Parikh (1975) 10.4% and Ashar *et al* (1970) 8.3% and Sachdeva *et al* (1961) 8.9%. Comparative higher rates of maternal deaths in this series than many other may be due to the fact that these patients were admitted as emergency cases with congestive failure, pulmonary oedema or other symptoms which did not respond to treatment. Maternal death due to cardiac cause alone in the present series was responsible for 2.1% amongst total maternal deaths during these 6 years.

Amongst the 10 patients who died, 7 had mitral valve lesions, 1 had aortic incompetence 1 was a case of A.S.D. and the last one was a case of congestive failure who probably was suffering from cor pulmonale. Four died when they were aged between 20 to 30, 5 were above 30, and 1 was within her teens. Two of these patients were primigravida, 5 were multi-

gravidas (2 to 4th) and 3 were 5th or higher gravidas.

#### *Duration of Gestations*

Two of these 10 patients reached full term, 8 died in their earlier period of gestations. Five of these 10 patients died undelivered, 2 within 12 hours of confinements due to shock. Three died within 24 hours to 7 days after confinements due to acute cardiac failure or pulmonary oedema.

The causes of deaths in these 10 cases were pulmonary oedema, acute failure, peripheral failure and pulmonary embolism.

The age and parity distribution of these 10 cases showed that high parity, advanced age and other associated maternal diseases are contributory factors of maternal deaths due to cardiac causes. It is advisable for women with cardiac lesions to have few pregnancies and that also when they are comparatively young. Known decompensated cases should avoid pregnancy or be sterilised.

#### *Pregnancy Following Cardiovascular Surgery*

In the present series, there was only 1 case who had previous commissurotomy for mitral stenosis and had no complications during pregnancy. However, a patient who has undergone a cardiovascular surgery should always be observed carefully both during pregnancy and labour.

#### *Summary and Conclusions*

In 6 year period in Eden Hospital, Calcutta there were 228 heart cases complicating pregnancy. Their incidences amongst total confinements were 0.42% per year. The maternal mortality was 4.8%. The commonest lesions were mitral valve involvement,

Cardiac disease is one of the common cause of maternal deaths. Hence proper antenatal, intranatal care is required to have good result. Intensive care unit attached to hospital may help to reduce this mortality. Control of conception in multipara and high risk cases are also advisable.

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