

HEART DISEASE COMPLICATING PREGNANCY*

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With the decline in the incidence of haemorrhages as aetiological factor of maternal mortality, cardiac disease complicating pregnancy remains as one of the important causes of maternal mortality.

Material

The present analysis consists of a study of 120 cases of cardiac disease complicating pregnancy, met with at King Edward VII Memorial Hospital, Bombay, over a period of 9 years from 1959 to February 1968. During this period, there were 22,000 confinements, giving an incidence of 0.53 per cent. Table I gives the incidence as given by other workers as well. A comparatively higher incidence than that by other Indian series is because of an attached cardiology unit at this institute.

Parity

The next table gives the parity-wise distribution of the cases. In the same table, the ratio of primipara and

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TABLE I

Author	No. of cases	No. of Confinements	Incidence per cent
Mendelson	2932	78,527	3.6
Burwell & Metcalfe	1335	76,125	2.3
Masani (1953)	47	22,833	0.2
Punjabi (1963)	60	24,123	0.25
Present series	120	22,000	0.53

multipara is compared with the same in general hospital admissions. As it is seen in this table, the incidence of heart disease in primiparae is higher than that in multiparae, particularly so far as the congenital heart disease is concerned.

TABLE II

Parity	Number of cases	Per cent	Per cent in total hospital deliveries
Primipara	29	25	22
Multipara	91	75	78
Total	120	100	

The type of lesion

Rheumatic heart disease is by far the commonest disease that is encountered in these cases as the patients with congenital heart disease rarely survive till this age and those

with other lesions develop so later in life. Table III shows the distribution of the lesion in these cases. compensated cases shows that perhaps, the patients which reach this parity have disease of mild nature.

TABLE III

Type of lesion	Present series		Per cent		
	No. of cases	Per cent	Jones (1951)	Masani (1953)	Punjabi (1965)
Rheumatic	95	79	90	90	83
Congenital	15	12.5	7	5	15
Aortitis	1	8.5	1	5	2
Arrhythmias	4		(Rest)		
Hypertension	3		2		
Tuberculosis	2				
Total	120				

On 94 occasions the mitral valve was involved. The aortic valve was affected in 18 patients, the tricuspid in two and pulmonary in one patient. Only one patient had mitral incompetence without any evidence of stenosis. In rest of the 11 patients of mitral incompetence, there was associated mitral stenosis.

TABLE IV
Class of failure and parity

Parity	Percentage of decompensated cases
I	24
II	43
III	32
IV	39
V	37.5
VI and above	27

As is seen from the above table, the percentage of decompensated cases was minimal in primiparas. The same again dropped when parity of the order of 6 or more was reached. This indicates that perhaps the percentage of decompensated cases increases once the patient has borne one child. The decline in the percentage of de-

Those patients with advanced lesion might have been sterilised by this time or they have less longevity, hence cannot attain this parity. Again, the patients with congenital heart disease do not attain this parity and the incidence of decompensated cases amongst them is high.

As it is seen in Table V, about 62 per cent of the primiparae were asymptomatic and 46.6 per cent of the patients of para 6 and more were asymptomatic.

TABLE V

Parity	Symptomfree patients (per cent)
I	62
II	35.7
III	40
IV	27
V	37
VI and more	46.6

However, the number of primiparae in this series is quite low to come to a definite conclusion.

Outcome of pregnancy

Spontaneous vaginal delivery is almost a rule in cardiac gravidas. In

the present series, 98 patients had spontaneous vaginal delivery. In these, the baby presented by breech in one case. In cardiac patients, the cervix is soft and the babies are small, hence the normal vaginal delivery.

The abortion rate does not appear to be higher than the overall incidence of the same at this institute. The pregnancy terminated before viability in 5 patients.

Lower segment caesarean section was carried out in a primipara for obstetric indication — cephalopelvic disproportion, and in another patient for Rhesus-iso-immunisation. The latter was a case of Takayasu's disease with multiple grafts replacing the arteries. The antibody-titre was more than 1 in 256, hence an elective lower segment caesarean section was carried out.

Prophylactic forceps was applied on 11 occasions. Most of these patients were primiparous. Thus, the forceps-rate in these cases is only 9.1 per cent. The incidence of the same in term patients is 10 per cent. The lower segment caesarean section-rate in term patients is 1.7 per cent.

TABLE VI

Outcome of pregnancy	Present series		Punjabi Per cent
	No. of cases	Per cent	
S.V.D.	98	81.6	85.8
Abortions	5	4.1	1.6
Forceps	11	9.1	10.0
L.S.G.S.	2	1.7	Nil
Died undelivered	4		1.6
Total	120		

Foetal outcome

Of the 111 patients who delivered after viability of the foetus was

achieved, 8 had stillborn babies. No other factor than the maternal cardiac lesion appeared to be responsible for stillbirth in these cases. Eight babies expired in the neonatal period. Thus the perinatal mortality in this series is 14.5 per cent. The foetal salvage is 78.3 per cent and the foetal loss 21.7 per cent. It is the anoxia in these cases which leads to the stillbirth. Prematurity is an added factor responsible both for stillbirth and neonatal death.

TABLE VII

	Present series
Perinatal mortality	14.5%
Foetal salvage	78.3%

Birth weights

Thirteen babies weighed less than 4½ lbs. or were premature by weight. Of these 13, 3 had delivered at term, and yet the baby-weight less than 4½ lbs. Thirty-one babies weighed more than six pounds. In the present series, after excluding abortions and premature births, the remaining 3 had babies weighing less than 4½ lbs.

Cardiac disease and maternal mortality

The maternal mortality in the present series is 8.3 per cent. This is much higher than that in any other series, probably because of the severity of the disease, failure on part of the patient to report early and associated diseases like anaemia and tuberculosis. In this series of 120 cases, there were 10 deaths.

Severity of the disease: All these patients except one belonged to class IV of New York Heart Association

Classification. The total number of cases belonging to class IV in the present series were 17, thus giving an incidence of maternal mortality in class IV as 53 per cent.

TABLE VIII

Author	Mortality Rate Per cent
1. Hamilton and Thompson	3.9
2. Vander Veer and Kuo	3.4
3. Mendelson	1.0
	0.8
4. Gorenberg and Chesley	0.4
5. Jensen	3.36
6. Jones	4.8
7. O'Driscoll <i>et al</i> (1957)	0.3
8. Burwell (1958)	1.0
9. Sutherland and Bruce (1962)	1.4
10. Punjabi (1965)	3.3
11. Present series	8.3

Parity: All the patients, except one, who expired were multiparae. One of these was a grandemultipara. All these patients were in twenties.

Duration of gestation

Only one of these patients reached full term. The rest expired earlier.

Six patients were suffering from mitral stenosis, one patient had mitral incompetence with high blood pressure in addition.

The eighth patient was a case of atrial septal defect with pulmonary hypertension.

Pericardial effusion of tuberculous origin was present in one patient.

Four patients expired undelivered. Only one of them had gone into

labour. Four patients expired soon after delivery. One patient died 72 hours after confinement and another after 7 days.

Pregnancy following cardiovascular surgery

In the present series, 16 patients had undergone cardiovascular surgery. As mitral stenosis is the commonest disease, which is tackled surgically, mitral commissurotomy was the commonest operation performed in the present series. Ten patients had undergone commissurotomy. Pericardiectomy was carried out in one patient with constrictive pericarditis. Vascular grafts were put in one patient with obliterative arterial disease. Two patients underwent surgery for patent ductus arteriosus and one for atrial septal defect. Surgery improved their performance; however, a patient who has undergone a cardiovascular surgery should always be observed carefully in pregnancy and labour, nonetheless than an unoperated patient.

Summary and conclusions

A study of 120 cases of heart disease complicating pregnancy is presented. The high mortality that prevails in these cases, justifies early detection, prompt treatment, meticulous antenatal, intranatal and post-natal care. This is one of the important unavoidable causes of maternal mortality, hence the best way to reduce the maternal death resulting from it is control of conception in these cases.