

PREGNANCY AND LABOUR IN CARDIAC PATIENTS

by

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The association of heart disease and pregnancy is of serious risk to the patient. Pregnancy places a mechanical burden upon the heart because of the increased blood flow and work of the entire circulatory apparatus. Despite improvement in medical care and surgical intervention, pregnancy in patients with mitral stenosis still remains hazardous because of the danger of congestive cardiac failure and pulmonary oedema. This study was undertaken to review the various factors which influence cardiac failure in pregnant patients with heart disease.

This is a review of 136 cases of heart disease with pregnancy that were admitted in Government R.S.R.M. hospital, Madras over a period of 3 years from 1976 to 1978. During the same period there were 37,338 deliveries, giving an incidence of 0.36%. Reports in the literature as to the frequency of cardiac lesion in pregnant mothers vary from Masani

(1957) 0.2%, Subhadradevi (1957) 0.72%, Parvathi and Anjaneyulu (1976) 0.34%, Menon 0.97%, Stander 4.15%, Lamb 2.7%, Daly 0.25%.

Socio-economic Status

This plays an important role in the prognosis of patients with heart disease. Patients belonging to the low socio-economic group have repeated child-birth without adequate spacing and get insufficient rest at home during pregnancy which has an adverse effect on the onset and severity of heart failure. The lack of co-operation of the patients towards proper antenatal check up add further to the problem. 92.7% of the cases in our series come from low socio economic group.

Age

The severity of symptoms and failure depends more on the underlying cardiac pathology than on the age of the patients. Analysis of 4 patients in the older age group 36-40 years (Table I) shows that

TABLE I
Age Distribution

| Age Group in Years | Number of cases | Percentage |
|--------------------|-----------------|------------|
| 16-20 | 22 | 16.2% |
| 21-25 | 59 | 43.3% |
| 26-30 | 29 | 21.3% |
| 31-35 | 22 | 16.2% |
| 36-40 | 4 | 3.0% |

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they were relatively symptom free till about 35 years and have undergone 3 to 6 pregnancies without symptoms.

Parity

Primigravidas formed 18.4%, 2nd to 4th gravidas together formed 61.1%. It is of interest to note that 20.5% of the cases were grandmultiparas.

Type of Lesion

Analysis of the types of cardiac pathology in patients in this series shows a preponderance of rheumatic heart disease forming 90.4% of the cases. Most workers in this field have reported that rheumatism forms the major cause of heart disease. (Punjabi 1966 83%; Bose 1957 64.7%; Masani 1957 87.2%; Parvathi and Anjaneyulu 1976 90%).

Congenital heart disease was found in 9 cases giving an incidence of 6.6% which correlates well with other authors (Masani 1957 10.6%; Bose 1957 10%). Tuberculous lesion was found in 2 cases 1.5% (Parvathi and Anjaneyulu 1976 1.5%).

Among the different valvular lesions encountered mitral valvular lesions were found in 82%, of which isolated mitral stenosis alone accounted for 70% of the cases. Aortic lesions either isolated or with mitral valve lesions constituted 8% of the cases. Cardiomyopathy formed 1.4%.

Functional Grades: More than half the patients (56.7%) admitted had Grade III and IV of heart failure.

Associated Complications of Pregnancy

The association of toxæmia in this series has rather been low. Only 4 cases or 3% of the patients had mild to severe

degree of toxæmia. Literature has reported the association as high as 19.4%. Antepartum hæmorrhage was found in 4 cases of which 1 had Type II placenta prævia and was delivered by caesarean section. There were 2 cases of atonic postpartum hæmorrhage of which 1 case died. The association of these obstetric conditions considerably increases mortality and morbidity in the patient.

In 51 cases there was moderate to severe anemia associated with heart disease giving an incidence of 37.4%. Anemia precipitates the onset of failure earlier in a heart lesion and interferes with accurate diagnosis and management. Of the 136 cases, 10 had bad obstetric history like repeated abortions, premature labours and dead births. Four cases had been investigated for long periods of infertility.

Associated Complications of Heart disease

Eight cases had atrial fibrillation associated with acquired heart condition. One case had first degree heart block due to digitalis therapy which was controlled after withdrawing the drug. One case had extrasystoles, Hemiplegia occurred as a complication of heart disease in 3 cases, of whom 1 had undergone cardiac surgery. One patient had congenital absence of both radial pulses; diagnosed as pulseless disease along with rheumatic mitral stenosis.

Labour Following Cardiac Surgery

Nine cases out of 136 had been operated for their heart lesion (6.6%). Six cases were operated for isolated rheumatic mitral stenosis, 1 for aortic stenosis and 1 for both mitral and aortic lesions. One patient had correction of patent ductus arteriosus. Except for 2 cases

which developed failure due to re-stenosis, other 7 cases were completely free from symptoms after surgery. Two out of the 9 cases were operated during the first half of pregnancy without any adverse effects on pregnancy. Pregnancy does not appear to increase the risk of mitral valvotomy as suggested by Boyle *et al* 1964, and the indications are the same as in the non-pregnant patient.

Mode of Delivery

Of the 113 cases which delivered, 71 cases had spontaneous vaginal delivery. Forceps was applied in 28 cases. Caesarean section was necessary in 6 cases for strict obstetric indications (5.3%). Six cases had inevitable abortion.

Caesarean Section: (Table II Caesarean Section)

All the 6 cases were done under general anesthesia and there was no immediate or delayed postoperative complication. The indication for operation

and the type of lesions are shown in Table VIII.

Sterilisation: Of the 113 cases which delivered, 27 cases had puerperal sterilisation. Twenty cases were done under local infiltration anesthesia and 2 cases were supplemented by intravenous pethidine and gas and oxygen. In 5 cases sterilisation was combined with caesarean section. Postoperative period was uneventful except for 1 case which developed left sided hemiplegia on the second postoperative day as an embolic phenomenon. The patient improved with medical treatment. Temporary contraception with intrauterine device was adopted in 1 case. Two cases had termination of pregnancy followed by sterilisation. The husband was vasectomised in 2 cases.

Foetal Loss: Foetal mortality was 9.5% which is a little low when compared with other series. Subhadra Devi (1957) reported foetal mortality as 20%. There were 3 dead births. Neonatal death occurred in 4 cases of which 2 were due to prematurity, 1 due to septicemia and the other due to infection. There were 6

TABLE II
Type of Lesion and Indication for Caesarean Section

| No. | Gravida | Type of Lesion | Grade of failure | Indication for Caesarean | Anaesthesia |
|-----|---------|---|------------------|---|-------------|
| 1. | 2 | Ventricular septal defect with pulmonary stenosis | I | Previous Caesarean | General |
| 2. | 2 | Post partum Cardiomypopathy | IV | Previous Caesarean | General |
| 3. | 2 | Mitral re-stenosis | I | Previous Caesarean CPD | General |
| 4. | 1 | Ventricular septal defect with pulmonary stenosis | I | Placenta Preavia with compound Presentation | General |
| 5. | 2 | Mitral stenosis | I | Previous Caesarean CPD | General |
| 6. | 2 | Tuberculous pericarditis | I | Previous Caesarean | General |

premature deliveries. Congenital anomaly in the form of ectopia vesicae was seen in a term baby which was corrected after an emergency operation. In this case the mother had been treated with duvadilan and progesterone injections, from the first trimester.

Maternal Mortality: There were 4 maternal deaths amongst the 136 patients. Incidence of maternal mortality is 2.9% which correlates with the incidence given in literature, about 2%. These patients were in the age group 20-26 years. Two of the deaths were among primiparas and the rest in multipara. The 3 antenatal deaths occurred between 32 to 38 weeks of gestation, while the other patient died 6 hours after delivery.

Two of the antenatal cases were admitted at the 9th month in a moribund condition, with acute pulmonary oedema and expired before treatment could be started. The other antenatal case was a booked one who developed pulmonary embolism suddenly and died at 34 weeks of gestation. The fourth case was a primipara who developed atonic postpartum haemorrhage after delivery by forceps and died within 6 hours. The usual causes of death as reported by other authors were pulmonary embolism, severe congestive cardiac failure, acute pulmonary oedema and atrial fibrillation.

Summary

1. In 37,338 deliveries, 136 cases were of heart disease complicating pregnancy during the past 3 years giving an incidence of 0.36% of which 92.7% of cases came from low socio-economic group.

2. Age and parity does not have much influence on the severity of failure. 3%

of cases fall in the age group 36 to 40 years and 2.9% are grand multiparas.

3. Rheumatic heart lesions was in 90.4% of cases of which mitral valvular lesions formed 82%. 6.6% of cases had undergone cardiac surgery.

4. Only 5.3% of cases were delivered by caesarean section.

5. The total foetal loss has been 9.5%.

6. There were 4 maternal deaths among 136 cases giving an incidence of 2.9%.

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