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RESEARCH ARTICLE

CLINICAL STUDY OF HEART DISEASE COMPLICATING PREGNANCY IN A TERTIARY CARE CENTRE

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ABSTRACT

Heart disease complicating pregnancy is considered as a high risk situation. Increased cardiac demands during the course of pregnancy potentially increase morbidity and mortality in women with underlying heart disease. Risk of adverse outcome is more in rural population as compared to its urban counterpart. A prospective clinical study of 170 cases of pregnancy complicated by heart disease, reporting to tertiary care hospital for delivery, was carried out to find out the incidence and maternal and fetal outcome. The incidence of heart disease in pregnancy in the present study was 1.2%. Most of the women (91%) belonged to low socioeconomic class in the rural population. Rheumatic heart disease constituted 39% of the cases. Isolated Mitral regurgitation was the commonest lesion accounting for about 20% of cases. Isolated MS accounted for 9% cases while Mitral stenosis combined with other cardiac lesions constituted 52% .Congenital heart disease constituted 45% of the cases. Among the 124 women who delivered, 25 (20%) women delivered spontaneously vaginally, 39 (31.4%) cases of prophylactic forceps delivery. Cesarean section was performed in 59 cases .There were 3 maternal deaths. Early diagnosis of heart disease, regular antenatal check up, institutional delivery, limiting family size can reduce the maternal and perinatal mortality and morbidity associated with heart disease.

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INTRODUCTION

Hemodynamic changes during normal pregnancy are well tolerated by women with normal cardiac reserve. Diseased heart shows signs of decompensation with resultant increase in morbidity and mortality. It is natural to expect that the fetus would also be compromised in these mothers. Fetal health depends upon an adequate and continuous supply of well-oxygenated maternal blood. In uncompensated heart disease, the oxygen supply becomes limited and that result in compromised fetal growth, there can be growth restriction, premature birth or may even fetal death. Rheumatic heart still remains commonest etiological factor for heart disease complicating pregnancy. It is because of frequent and repeated streptococcal infections in childhood especially in rural areas with poor sanitary conditions. Though congenital heart disease is on an increasing trend due to screening and better diagnosis. In many pregnant women, heart disease still remains undiagnosed until complications develop especially from rural population. Even after the diagnosis, many women do not comply with the instructions given by obstetrician for various reasons. Women having additional obstetrical complications further worsen the prognosis. In western countries, maternal heart disease complicates1-3% of pregnancies and is the third common cause of maternal death during pregnancy. Heart disease is one of the 3 major indirect causes of maternal mortality in India. Most data concerning pregnancy course in heart disease patients are anecdotal reports or are in small series; only a few comprehensive studies are available. The primary objective of the present study was to study the incidence of the different cardiac lesions during pregnancy and to assess the effect of heart disease on maternal and fetal outcome.

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MATERIALS AND METHODS

The present study was carried out over a period of 5 months from May 2016 – September 2016 at Government Rajaji Hospital, Madurai which is a tertiary care center in the region. All antenatal women diagnosed to be having heart disease were enrolled in the study. Cases were referred to cardiologists for confirmation of cardiac disease and to seek their opinion regarding management. Cases directly reporting to labour room were also included in the study. Detailed history in regard to cardiac lesion was asked. Detailed obstetric history was also gathered to know the effect of cardiac disease on pregnancy and vice versa .Thorough clinical examination was

done to find out the type of cardiac lesion, any signs of failure and stage of pregnancy. The case was then investigated with specific investigations to confirm the cardiac lesion and the cardiac functional status. Cases were graded as per NYHA classification of grade of heart disease. Patients were advised to have regular antenatal check up. They were told about the importance of rest, medication and regular visits. In every visit, patients were referred to physician for their opinion regarding cardiac status. Patients were counselled regarding the importance of compulsory institutional delivery .Cases reporting during labour were managed as per the cardiac conditions. Postnatally patients were dischargedafter 14 days with advice about contraception, breast feeding, penicillin prophylaxis, other medications if any and timely review.

RESULTS

The incidence

The total no of cardiac patients admitted during the study period were 170. Among which 124 patients delivered. The incidence of heart disease in pregnancy in the present study was 1.2%. Most of the women were in the age group 20-24 yrs. Majority of the women were multigravida (60%).

Type of heart lesion

Distributions of cases as per type of lesion

Congenital heart disease accounted for 78 patients (45.8%)
Acquired heart disease accounted for 90 patients (52.9%)
2 patients had combined congenital and acquired cardiac lesions.

Type of cardiac lesion	No. of cases	%
MR	23	13.5
MS	08	4.7
MS+MR	10	5.8
MS + others	16	9.4
ASD	33	19.4
VSD	13	7.6
PDA	03	1.8
MVPS	09	5.3
IAS aneurysm	04	2.4
PDA +VSD	1	0.6
PHT	7	4.1
VPC	1	0.6
WPW	1	0.6
SICK sinus syndrome	1	0.6
ASD+MS+MR	1	0.6
PPCM	12	7.1
AS	3	1.8
TR	5	3
GR 1 Diastolic Dysfunction	2	1.1
Pericardial effusion	1	0.6
PS	3	1.8
Bicuspid aortic valve	1	0.6
Double chambered rv with anomalous muscle bundle in rvot	1	0.6
Other multivalvular lesions	11	6.5
Total	170	100

Functional grading (NYHA Classification): Distribution as per functional grading

Functional	No. of cases	%
GRADE I	118	69.4
GRADE II	31	18.2
GRADE III	12	7.1
GRADE IV	9	5.3

Cardiac and other complications observed during pregnancy: Distribution of cases as per nature of complications

Pulmonary hypertension	25
PPCM	8
PPCM + acute pulmonary edema	4
Anemia	52
Hypertensive disorder	12
GDM	2
Renal failure	2
Hypothyroid	1

Mode of delivery

Out of the 123 cases, 6 cases were delivered outside and referred for further management

LN – 25
Outlet Forceps – 39
LSCS – 59
Lscs -22
obstetric indication – 15
Cardiac - 7
Rptlscs - 37

Patients were given intrapartum care in the form of back rest, nasal oxygen, epidural analgesia and frequent vitals monitoring.

AMTSL was followed in all patients.
4 patients have suffered postpartum haemorrhage managed medically.

Birth weight of babies

Incidence of low birth weight was 25 % (birth weight < 2.5 kgs) accounting to 31 babies. These babies had NICU care for few days and discharged with good health. 7 more babies had NICU admission for MSAF and RDS.

There were no perinatal deaths.

NEONATAL CARDIAC SCREENING was done in all the babies born to mothers with congenital heart disease. Out of 45 ,23 babies had cardiac lesions
PFO accouted for 56 % of cases
ASD constituted 39% of cases

MATERNAL MORTALITY – 3

The cause of death in one patient was intrapartum ventricular tachycardia leading to LVF and MODS. She was a known case of RHD – mild MS/severe MR – CMC done 2 yrs back, delivered by cutting short the second stage with outlet forceps. In another patient, a case RHD – mild MR, post MVR on anticoagulants, she went in for acute pulmonary edema and right ventricular failure. The other patient was a case of peripartum cardiomyopathy who had recurrent episodes of acute pulmonary edema and went for acute right ventrivular failure postnatally.

DISCUSSION

The number of women with heart disease, who reach childbearing age in a good functional state has increased due to

the improved facilities for diagnosis and treatment. As a result, pregnancy becomes a realistic option for many of these young women .There were total 170 heart disease women in the study period of 5 months out of which 124 delivered. The incidence of heart disease in pregnancy in our study is 1.2%.Most of the patients (91%) belonged to low socioeconomic class in the rural population. The commonest age group to which the patient belonged to was 20-24years. The majority of the patients (60%) were multigravida. In our study, the incidence of RHD is higher, as most of the patients belonged to low socioeconomic class where poverty, poor nutrition, low level of sanitation and hygiene and inaccessibility to health services are common .Mitral stenosis is the commonest heart lesion in 52% of the lesion. Most patients (69.4%) belong to Grade I functional heart disease, 18.2% of the cases belong to Grade II heart disease, 7.1% belong to Grade III and 5.3% belong to Grade IV disease. All the patients belonging to Grade III and IV were admitted at the first visit, evaluated and kept under observation. They stood the pregnancy very well and delivered spontaneously at term without any complications. The puerperium was also uneventful. The commonest complaint in the patients was dyspnea on exertion (57%) followed by palpitation. There were 12 cases of peripartumcardiomyopathy, among which 4 patients presented with acute pulmonary edema while others were diagnosed incidentally for evaluation of anemia and gestational hypertension. Only one patient developed failure during puerperium. Vaginal delivery is the commonest mode of delivery in heart disease cases. Prophylactic Outlet forceps were applied in 39 cases .There were 2 maternal death. The perinatal outcome was good.

Conclusion

Heart disease complicating pregnancy is a high risk situation and demands special attention throughout pregnancy. An expert supervision and management by the obstetrician along with physician and the fullest co-operation by the patient throughout antenatal, intranatal and post-natal period, results in achieving the optimum maternal and perinatal outcome. It is essential to educate the rural population about the importance of regular antenatal visits and institutional delivery. Establishing the facilitities for cardiac surgery at affordable cost in rural area will certainly go a long way in decreasing the mortality, morbidity related to heart disease complicating pregnancy.

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