



Retrospective Analysis of Pregnancy outcome in Women With Heart Disease

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ABSTRACT

Heart Disease is a high risk medical disorder complicating pregnancy and also an important indirect cause of maternal mortality. Retrospective analysis of pregnancies complicated by heart disease was done in a tertiary care hospital over a period of two years. Rheumatic Heart Disease (77.27%) with Mitral stenosis is found to be the commonest acquired valvular heart disease & ASD being the commonest congenital heart disease(22.72%). 27% belonged to NYHA class III & IV. The most common complication observed is CCF(10%) and anaemia being an associated aggravating factor. Majority delivered at term(91.8%) by spontaneous vaginal delivery(46.36%). In our study perinatal mortality rate is 2.7% & there is no maternal mortality. Early diagnosis of Heart disease, regular antenatal check up, institutional delivery can reduce maternal & perinatal mortality & morbidity associated with heart disease.

KEYWORDS

CHD/ RHD/ Mitral stenosis/ CCF

INTRODUCTION:

Cardiac disease complicates 1% of pregnancies; Heart disease poses a challenge for diagnosis during pregnancy as most of symptoms of cardiac disease like breathlessness/ pedal edema/ systolic murmur occur in normal pregnancy. Circulatory overload of pregnancy is a strain on a patient with poor cardiac reserve & hence adverse pregnancy outcomes occur.

The ratio of RHD:CHD is increasing due to improved paediatric care & improved surgical intervention early in childhood. Modern therapeutic options enable women with CHD to reach reproductive age; & attempt conception multiple times.

Further, Obstetric complications like, preeclampsia, anaemia, preterm labour, fetal growth restriction worsen the maternal & fetal outcome.

Hence, a favourable pregnancy outcome depends only on good supervision & constant monitoring of a cardiac patient throughout pregnancy & postpartum by a team of obstetrician, cardiologist, anaesthesiologist & neonatologist.

OBJECTIVE:

To study maternal & fetal outcome in pregnancy complicated by heart disease in a tertiary care centre.

MATERIAL & METHODS:

The retrospective study was conducted in Govt. RSRM Lying in Hospital- Chennai, over a period of two years September 2013-September 2015. Total of 110 pregnant women with cardiac disease admitted to maternity ward were included in the study.

The data was obtained from parturition registers, abortion registers & high risk pregnancy registers. The data regarding age, parity, type of lesion, maternal complication, mode of delivery, neonatal outcome were noted. All pregnant women with history of cardiac disease, or newly diagnosed for first time in pregnancy were included in the study. All conditions that mimic heart disease were excluded from the study. The data was tabulated & analysed with simple descriptive statistics.

RESULTS:

A total of 110 pregnant mothers with cardiac disease were included in the study.

TABLE 1:. AGE WISE DISTRIBUTION

AGE(years)	NO. OF CASES	PERCENTAGE
18-20	17	15.45%
21-25	70	63.63%
26-30	20	18.18%
31-35	3	2.72%
>36	Nil	nil

Table 1 shows distribution of cases according to age. There were 17 cases below 20 years, 63.63% between 21-25 years & only 2.7% between 31-35 years of age. There were no patient above 36 years

TABLE 2:. PARITY WISE DISTRIBUTION

GRAVIDA	NO. OF CASES	PERCENTAGE
Primi	46	41.81%
Second gravida	54	49.09%
Third gravida & more	10	9.09%

Of the total 10 pregnant women, 46 were primi gravida, 54 were second gravida & 10 were third gravida or more.

TABLE 3:. TYPE OF LESION

TYPE OF LESION	NO. OF CASES	PERCENTAGE
RHD	85	77.27%
CHD	25	22.72%

Most of the patient in the study had RHD(77.27%) & rest had CHD (22.72%)

TABLE 4:. DISTRIBUTION OF VALVULAR LESIONS

VALVULAR LESION	NO. OF CASES	PERCENTAGE
Mitral stenosis	39	35.45%
Mitral regurgitation	12	10.9%
MS with MR	20	18.18%
Multivalvular	10	9.09%
Aortic regurgitation	1	0.9%
MS with AR	1	0.9%
MS with TR	2	1.8%

Table 4 shows the various valvular lesions in 85 RHD patients. 35% of them had MS - the commonest. Next in the list comes MS with MR accounting to 18%. Aortic lesions were rare with just 1 case of AR & 1 case of MS with AR. Multivalvular heart disease was seen in 10 cases.

TABLE 5 DISTRIBUTION OF CHD:.

CONGENITAL HEART DISEASE	NO. OF CASES	PERCENTAGE
ASD	11	10%
VSD	5	4.54%
PDA	2	1.8%
Bicuspid Aortic stenosis	2	1.8%
VSD with PS	1	0.9%
Dextrocardia	1	0.9%
Coarctation of Aorta	1	0.9%
TOF	2	1.8%

Of 25 cases with CHD, 10% had ASD, 4.5% had VSD. Dextrocardia & coarctation of aorta were seen in one case each. 2 cases of TOF, 2 cases of PDA & 2 cases of Bicuspid AS were noted.

TABLE 6 :. DISTRIBUTION ACCORDING TO FUNCTIONAL CLASS

NYHA CLASS	NO. OF CASES	PERCENTAGE
I	48	43.63%
II	32	29.09%
III	24	21.81%
IV	6	5.45%

Table 6 shows the different functional classes, when the patient first presented at our hospital. 43% were in functional class I of NYHA classification. 29% in class II, 21.81% in class III & 5.45% in class IV.

TABLE 7- MATERNAL COMPLICATION:.

MATERNAL COMPLICATION	NO. OF CASES	PERCENTAGE
CCF	11	10%
Acute pulmonary edema	4	3.63%
Atrial fibrillation	2	1.81%
Embolic manifestation	1	0.9%
Subacute bacterial endocarditis	-	-
Chorea	-	-
Supraventricular tachycardia	-	--
Pulmonary artery hypertension	2	1.8%

Complications of heart disease were noted in 20 pregnant mothers. The most common complication, in our study was CCF in 11 mothers, 7 of them had coexisting anaemia & 1 had preeclampsia, 1 had LRI . 4 cases had acute pulmonary edema of which 2 had coexisting severe preeclampsia 2 cases of Atrial fibrillation and one case of ASD with embolic manifestation as young stroke with right hemiplegia were noted.

TABLE 8 – ASSOCIATED AGGRAVATING FACTORS

AGGRAVATING FACTORS	NO. OF CASES	PERCENTAGE
Anaemia	23	20.09%
Mild	9	8.18%
Moderate	2	1.81%
Severe		
PIH	3	2.72%
Fever/ LRI	1	0.9%
PPH	1	0.9%
Asthma	1	0.9%

40 pregnant women had precipitating factors for cardiac complications. Anaemia was the commonest aggravating factors observed in 34 cases. PIH in 3 cases. Fever /PPH/ asthma were

noticed in 1 case each. These precipitating factors further deteriorate the cardiac status.

TABLE 9- MODE OF DELIVERY:.

MODE OF DELIVERY	NO. OF CASES	PERCENTAGE
Normal vaginal	51	46.36%
Outlet forceps	40	36.36%
LMC forceps	1	0.9%
Abortion	3	2.72%
LSCS	15	13.63%

Table 9 shows the mode of delivery in our study group; majority delivered by normal vaginal delivery 46%. Outlet forceps was used to cut short 2nd stage of labor in 36% of patients, LMC forceps used in 1 case. LSCS was done only for obstetric indications in 13.63% of patients. 3 patients aborted spontaneously. Of the 92 patients who delivered vaginally, 78 had spontaneous onset of labour, the remaining 14 were induced due to post-datism, preeclampsia & fetal alarm signal.

TABLE 10- FETAL OUTCOME:.

FETAL OUTCOME	NO. OF CASES	PERCENTAGE
Term	10	91.81%
Preterm	6	5.45%
abortion	3	2.72%

Majority- 101 out of 110 cases delivered at term, 6 had pre-term delivery & 3 patients aborted.

TABLE 11- DISTRIBUTION ACCORDING TO BIRTH WEIGHT:.

BIRTH WEIGHT	NO. OF CASES	PERCENTAGE
< 1 kg (extremely LBW)	1	0.9%
1.01 – 1.5 kg (very LBW)	2	1.8%
1.51 – 2.49 kg (LBW)	28	25.45%
2.50 – 2.99 kg	56	50.90%
>3 kg	20	18.18%

There were 3 babies < 1.5 kg weight. And 28 babies in LBW; 56 in the range of 2.5-2.9 kg and 20 babies weighing ≥3 kg at birth. 2 babies expired due to preterm labour and VLBW. 1 baby died due to birth asphyxia with APGAR < 7 at 1 minute. This accounts to a perinatal mortality rate of 2.7% > There was no maternal mortality noticed in our study.

DISCUSSION:.

Cardiac disease continues to be a risk factor for maternal and neonatal morbidity and mortality.

AGE AND PARITY OF THE PATIENT:.

Chesky, Mudhaliar and Menon stated that deterioration of RHD is due to progressive nature of the lesion with age rather than with increasing parity.

In the present series, nearly 78% cases were under the age of 25 years. Younger the patient, better the prognosis.

TYPE OF HEART DISEASE:.

In older studies by Kamala siddar (1980), Mudhaliar and Menon, incidence of RHD was 90-96%. Latest studies done in western countries by Tan and Deswriet reported that incidence of RHD - only 12% . Chia reported that incidence of RHD 61.6% and CHD - 38.4%. Brickener and Coworkers showed that better medical management together with a number of newer surgical techniques, enables more girls with CHD to reach child bearing age.

In the present study, 77% patients had RHD , 22% had CHD. This study

correlated with Brenwald report which showed that RHD is not more than 78% of pregnant cardiac patients. By improving the standards of health care and hygiene the prevalence of RHD in pregnancy can be brought down.

RHEUMATIC VALVULAR LESIONS:

Mitral stenosis was predominant lesion in studies conducted by Sheela et al (67%) Mahesh et al (64%) Nilajkumar et al (80%). In Szekely series, showed predominant MS in 90%, MR in 6.6%, AS in 1% and AR in 2.5%. Unlikely Szekely series, isolated MS was noted in 35% , MR in 10% and AR in 0.9%. The diagnosis of these lesions is very important because . MS should be managed on the dry side and AS should be managed on the wet side.

CONGENITAL HEART DISEASE:

ASD was common in studies conducted by Sheela et al and Nilajkumar et al. In the present study- 10% had ASD-OS, 4.5% had VSD, 1 patient with dextrocardia, 1 with VSD and PS, 3 with Bicuspid AS, one of the 5 VSD and two of the 11 ASD were operated before. There was one case of co-arc-tation of aorta. All the patients had good fetomaternal outcome.

FUNCTIONAL STATUS:

Majority of patients were in NYHA class I & II. Results were comparable to studies by Mahesh et al & Sheela et al.

COMPLICATIONS OF HEART DISEASE:

RHD was a potential risk of developing one or more of the complications like CCF, pulmonary edema, arrhythmia, systemic or pulmonary embolism, infective endocarditis, etc.

CCF:

It was observed that 11 out of 20 cases were complicated by CCF, Age, anaemia, PIH, infection increased the risk of CCF. ACUTE PULMONARY EDEMA:

In the present study,, Acute pulmonary edema was noted in 4 case. It is a life threatening condition with high maternal mortality rate. They were efficiently managed with aggressive diuretics, CCU care and mechanical ventilation when required. MS is one of the predisposing factors for acute pulmonary edema. Hence patients with severe MS should undergo Closed Mitral commissurotomy/ Balloon valvuloplasty.

THROMBOEMBOLISM:

One patient, known case of congenital heart disease- large ASD – OS , unbooked case developed right hemiplegia following delivery possibly a paradoxical embolism with reversal of shunt. This insists on the importance of anticoagulant prophylaxis in cases of ASD.

ASSOCIATED AGGRAVATING FACTORS:**ANAEMIA:**

In the present series, 21% cases had anaemia, 2 cases of severe anaemia, 9 moderate and 23 mild anaemia. On analysis, we found that severe anaemia was a precipitating factor of CCF and preterm delivery.

PIH:

In the present study 3 cases had PIH. Superadded toxemia causes adverse fetal outcome due to compromised utero-placental blood flow.

TABLE 12- MODE OF DELIVERY:

MODE OF DELIVERY	Dr. K. Sikdhar	PRESENT STUDY
Spontaneous vaginal	81.6%	46.36%
Outlet forceps	9.1%	36.36%
LMC forceps	-	0.9%
LSCS	1.7%	13.63%
Abortion	4.1%	2.72%

LSCS was done in 13.63% for obstetric indications only. There was more liberal use of outlet forceps to cut short second stage of labour compared to Sikdhar's series.

FETAL OUTCOME:

Perinatal mortality rate in the present study was 2.7% . Of the

3 babies, 2 died due to prematurity, VLBW and 1 due to birth asphyxia. Perinatal mortality reported in other studies – 13.6% by Beebi et al, 35% by Szekely and Snaith, 5.4% by Dipak Lahiri et al.

CONCLUSION:

Heart disease is a high risk condition which has a major impact on pregnancy and its outcome. RHD is the predominant cardiac problem in reproductive age group. The early detection and treatment, proper follow up and correction prior to pregnancy shall reduce the maternal morbidity and mortality. The early detection and management of aggravating factors may help evade cardiac complications. Educating the community about cardiac disease and its complications, need for early detection of cardiac lesion, close follow up during antenatal, Intrapartum and postpartum period by a team of obstetrician, cardiologist, neonatologist and anaesthesiologist is essential to improve maternal and fetal outcome in heart disease complicating pregnancy.

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