Fetomaternal outcome in cardiac disease complicating pregnancy: A retrospective study

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INTRODUCTION

Cardiac disease in pregnancy is the indirect leading cause of maternal death.It is one of the main cause for maternal mortality and morbidity. Heart disease in pregnancy comprises 1-4% of pregnancies in India and maternal deaths is about 10-25%. Pregnancy imposes profound hemodynamic changes which continues even in immediate postpartum period. Additional burden in pre-existing cardiac disease patient precipitates complication and makes them high risk. Hence cardiac disease is challenging in pregnancy to the obstetricians, cardiologists and neonatologists which makes this study vital.

OBJECTIVES

To evaluate the fetal and maternal outcome in pregnancy with cardiac disease.
To measure the prevalence of cardiac disease in pregnancy

METHODOLOGY

This was a retrospective observational study carried out at the department of Obstetrics and Gynecology at Pondicherry Institute of Medical Sciences(PIMS), Pondicherry during the period of 2002 to 2018.

INCLUSION CRITERIA:

All women with cardiac disease complicating pregnancy who delivered at PIMS from 2002 to 2018 were included in the study.Their details were collected from the case record and registers and their prevalence and outcomes were studied. Detailed history of the women about demographic characteristics, duration of pregnancy, type of heart disease and any prior

treatment, mode of delivery, complications, ICU admissions, hospital stay and baby details were collected from their case record and registers. Data were entered into a Microsoft Excel Spread Sheet and analysed using SPSS software.

RESULTS

About 136 patients were included in the study. Prevalence of cardiac disease in pregnancy was found to be 0.66% at our centre. Out of which majority were in the age group 20-30 years which is 75%

TABLE 1: Age group

Age group	Frequency	Percent
<20	20	14.7
20-30	103	75.7
30-40	13	9.6
Total	136	100.0

Among 136 patients, 82.4% were booked in our centre and 17.6% were booked elsewhere

TABLE 2: BOOKING STATUS

	Frequency	Percent
BOOKED	112	82.4
BOOKED ELSEWHERE	24	17.6
Total	136	100.0

Most patients included in the study were multigravida which was 55.1%. Primigravida were 44.9%.

TABLE 3: Gravida status

Parity	Frequency	Percent
Primigravida	61	44.9
Multigravida	75	55.1
Total	136	100.0

Out of these 136 patients, Majority were in early term(37-39weeks) group which was 57.4% followed by full term (39-41weeks) group.

TABLE 4: Gestational age wise distribution

Gestational age	Frequency	Percent
Preterm(<37w)	22	16.2
Early term (37-39w)	78	57.4
Full term (39-41w)	35	25.7
Late term (41-42w)	1	.7
Total	136	100.0

Most of the patients in the study had Acquired heart disease – 72.7%. Congenital heart disease was 27.2%. Most common congenital heart disease seen in study population was ASD and VSD which was seen in13 patients each respectively. Most common acquired heart disease was Mitralstenosis which was seen in 35 patients. Surgical correction was done in almost 37 patients prior to pregnancy.

TABLE 5: TYPE OF HEART DISEASE

Heart disease	Frequency	Percent
Congenital	37	27.2
Acquired	99	72.7
Total	136	100.0

TABLE 6: CONGENITAL HEART DISEASE

CONGENITAL HEART DISEASE	FREQUENCY
VSD	13
ASD	13
Biscuspid aortic value	2
Coarctation of aorta	1
Eisenmenger syndrome	2
Hypoplastic right heart	1
PDA	2
TOF	3
Total	37

TABLE 7: ACQUIRED HEART DISEASE

ACQUIRED HEART DISEASE	FREQUENCY

MS	35
MS C MR	15
MVP	20
AR	4
MR	12
MR+AR	8
PS	2
TR	1
PeripartumCardiomyopathy	1
HOCM	1
Total	99

TABLE 8: SURGICAL MANAGEMENT

SURGICAL CORRECTION	FREQUENCY
BMV	10
MVR	8
ASD closure	11
Double chamber permanent pacemaker	1
PDA –connected	2
VSD closure	3
Double value replacement	2
Total	37

Labour was Induced in 26.5% whereas spontaneous in 73.5%. Out of total 136 patients, majority had Vaginal delivery(46.3%), C-section was about 19.9%, Instrumental delivery which includes Forceps and Ventouse was 9.6% and 19.9% respectively. Most common indication for instrumental delivery was to cut short second stage. Indications for cesaerean section includes previous LSCS in labour, fetal distress, malpresentation.

TABLE 9: TYPE OF LABOUR

LABOUR	Frequency	Percent
INDUCED	36	26.5
SPONTANEOUS	100	73.5
Total	136	100.0

TABLE 10:MODE OF DELIVERY

DELIVERY	Frequency	Percent
FORCEPS	13	9.6
LSCS	27	19.9
VACCUM	33	24.3
VAGINAL	63	46.3
Total	136	100.0

TABLE 11: INDICATION FOR INSTRUMENTAL DELIVERY

INDICATIONS	Frequency	Percent
MATERNAL EXHAUSTION	1	2.2
FETAL DISTRESS	2	4.3
TO CUT SHORT SECOND STAGE	43	93.4
Total	46	100.0

TABLE 12: INDICATION FOR LSCS

INDICATIONS	FREQUENCY
Previous lscs in labour	9
Fetal distress	5
Non progress of labour	5
Transverse lie	1
Secondary arrest of labour	1
CPD	2
Breech	1

Imminent eclampsia	1
Contracted pelvis	1
Placenta previa	1
Total	27

Maternal antenatal complications noted were Anemia, Gestational diabetes, Preterm labour, Rh negative pregnancy, IUGR, Oligohydramnios, Fibroid complicating pregnancy and hypothyroidism. Intrapartum complications were PPH, left angle extension and shoulder dystocia. Postpartum complications were seen in 7 patients which includes cardiac failure, seizure and pulmonary edema. Maternal mortality was 2 due to cardiac failure. ICU admission was required in 5 patients. Minimum number of hospital stay was 7days whereas maximum was 18days.

TABLE 13: INTRAPARTUM COMPLICATIONS

Complications	Frequency
Left angle extension	1
PPH	6
Shoulder dystocia	1
Total	8

TABLE 14: POST PARTUM COMPLICATIONS

COMPLICATIONS	FREQUENCY
Cardiac failure	4
Seizure	1
Pulmonary Edema	2
ICU admission	5
Maternal mortality	2

TABLE 15: NO.OF HOSPITAL STAY

	N	Minimum	Maximum	Mean
NO.OF HOSPITAL STAY	136	7	18	10.07

Neonatal outcomes were also studied. In which small for gestational age babies were seen in 25.7% and large for gestational age were seen in 74.3%. APGAR score of less than 7 was seen in 4.4% babies. NICU admission was required by 5.1% babies. There was no perinatal mortality.

TABLE 16: Birth weight group

BIRTH WEIGHT	Frequency	Percent
SGA (<2.5kg)	35	25.7
AGA (2.5-4kg)	101	74.3
Total	136	100.0

TABLE 17: APGAR 1MIN

APGAR	Frequency	Percent
</=7	6	4.4
>7	130	95.6
Total	136	100.0

TABLE 18: NICU ADMISSION

NICU admission	Frequency	Percent
YES	7	5.1
NO	129	94.9
Total	136	100.0

DISCUSSION

This study was aimed to evaluate the prevalence of cardiac disease in pregnancy and fetomaternal outcome. Prevalence of cardiac disease in our study was found to be 0.66% which was similar to various studies including study by Wasim et al. Distribution of age in our pregnancy was maximum in 21-30years which was comparable with Salam Set al and Kapadia et al (3,10) which was between 21-25years. Cardiac disease was common in multigravida in our study which is contrary to Pujitha KS et al and Abbasi et al(4,1) where it is common in primigravidas. Gestational age at which the patients delivered was commonly found to be at early term which was 57.4% which was similar to Pujitha KS et al and Abbasi et al(4,1).

In study conducted by Thakkar et al,Salam et al., and various other studies, Rheumatic heart disease was found to be predominant heart disease which was comparable with our study we found it to be 76.5%. Most common lesion in rheumatic heart disease was found to be Mitral stenosis in our study which was comparable with Pujitha KS et al., Surgical correction of heart disease was found in 27.2% whereas it was 40.6% in study by Pujitha et al.

Labour was induced in about 26.5% in our study which was contrary to Salam S et al where induction was done in 5.6% patients. Mode of delivery was predominatly by vaginal delivery which was 46.3% which was comparable to Kapadia LD et al and Thakkar JK et al.,where it was 48.9% and 40% respectively. Cesaerean section was done is 19,9% of which common indication was previous LSCS in labour. Antenatal complications in our study was anemia, preterm labour,gestational diabetes, hypothyroidism whereas anemia, preeclampsia, Abruptio placenta was seen in Pujitha KS et al. Postpartum complication found were cardiac failure in 4 patients, pulmonary edema in 2patients, ICU admission in 5 patients and maternal mortality in 2patients whereas cardiac failure in 2patients, pulmonary edema in one patient and maternal mortality in 1 patient in study by Pujitha KS et al,.

Neonatal outcomes studied were birth weight, where 25.7% were small for gestational age babies in our study which was contrary to Wasim T et al and Pujitha KS study were it was 45.6 % and 50% respectively. APGAR score <7 was seen in 4.4% babies which was almost similar to 5.9% in a study conducted by Abbasi S et al,. NICU admissions were found in 5.6% in our study but it was about 28.6% in study by Salam S et al. There was no perinatal mortality.

CONCLUSION

Cardiac disease is a high risk pregnancy and has major effect on morbidity and mortality in pregnancy. Early detection and treatment either by medical or surgical management is essential. Hence adequate preconceptionalcounselling, antenatal monitoring, involvement of multidisciplinary team and delivery in a tertiary care setup with ICU and Cardiac care facilities may improve the fetal and maternal outcomes in cardiac disease complicating pregnancy.

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