

## ORIGINAL RESEARCH

**Maternal and fetal outcome amongst pregnant women with cardiac diseases: A hospital based study****<sup>1</sup>Dr. Navneet Kaur, <sup>2</sup>Dr. Jabeena, <sup>3</sup>Dr. Nancy Bhagat**<sup>1-3</sup>Senior Resident, SMGS Hospital, GMC Jammu, Jammu and Kashmir, India**Corresponding author**

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**Abstract**

**Background:** The overall incidence of heart disease in pregnancy is <1%, rheumatic heart disease being the commonest type. The risk of spontaneous miscarriages, therapeutic abortions, children borne with congenital heart disease are increased in women with heart diseases.

**Aims and Objectives:** To determine the maternal and fetal outcome amongst pregnant women with cardiac diseases. **Materials and Methods:** This study was conducted in the Department of Obstetrics and Gynaecology at SMGS hospital Jammu. 109 women with newly diagnosed or previously known case of heart disease were enrolled in the study.

**Results:** The prevalence of heart disease amongst all pregnancies found in hospital was 6.1%. The principal cause of cardiac lesion was Rheumatic heart disease (RHD) (65.1%) while congenital heart disease was seen in 18.3. 2.7% mortality was noted, heart failure and pulmonary oedema being the cause of death. 13.2% women had to be admitted in ICU. 44.9% underwent LSCS for obstetric reasons, 19.2% had spontaneous vaginal delivery, 4.5% had induced labour followed by vaginal delivery. 22.9% had instrumental delivery to shorten the second stage of labour and 8.2% underwent MTP.

**Conclusion:** Careful history taking and clinical examination remains the key to diagnosing heart disease early. A multi-speciality team approach in institutions experienced in caring for such patients should help considerably in reducing the impact of cardiac disease on the mother and the foetus.

**Introduction**

The overall incidence of heart disease in pregnancy is <1% (Bhatla et al [3]). Cardiac disease in pregnancy is broadly divided into congenital and acquired. The acquired group includes RHD, cardiomyopathies and ischemic heart disease. In developing countries rheumatic heart disease is the commonest type, whereas cardiomyopathies and congenital heart disease are more common in developed countries. The risk of spontaneous miscarriage and therapeutic abortion increases in women with heart disease (Siu SC et al [2]). The children borne from the mother with congenital heart disease are at increased risk of congenital heart disease. Some cardiac medications can have adverse effects on the fetus such as ACE inhibitors, warfarin and statins. ACE inhibitors are teratogenic (Cooper et al [4]). The use of Statins during pregnancy is controversial. Women with heart diseases who desire pregnancy should be offered preconceptional counselling wherein the patient should be educated about the optimum time to become pregnant, the effects of pregnancy on the heart condition, general

care during pregnancy, neonatal/ perinatal risks and the ways to optimise their cardiac condition before pregnancy occurs. Issues in managing cardiac disease during pregnancy in the Indian context include lack of access to specialised cardiac care, non compliance with medication, difficulties in monitoring patients and the occurrence of pregnancy in complex uncorrected congenital heart diseases.

### Aims and Objectives

To find out the maternal and fetal outcome amongst pregnant women with cardiac diseases .

### Materials & Methods

This study was conducted in the Department of Obstetrics and Gynecology of SMGS hospital jammu. 109 women who were known case of heart disease or newly diagnosed with one during pregnancy were enrolled in the study. All pregnant women with congenital or acquired cardiac lesions or delivered patients with heart disease who were referred to our hospital were included and those with associated medical disorders like Diabetes mellitus, pulmonary disease, renal disease or any other endocrinological disease were excluded from this study. Data recorded included were age, parity, gestational age, cardiac lesions, use of cardiac medications, thorough clinical examination including chest and cardiovascular auscultation, ECG and echocardiographic assessment of left and right ventricular systolic function. The mode of delivery whether vaginal, use of instruments and the need for LSCS and neonatal details were duly recorded.

### Results

**Table 1: Distribution of cardiac lesion in pregnant women**

Lesion	Number of patients	Percentage
RHD	71	65.1%
Congenital	20	18.3%
Previous cardiac surgery	9	8.2%
Miscellaneous	9	8.2%
Total	109	

In Table 1: Amongst the women who had Rheumatic heart disease (65.1%), Mitral Valve stenosis was the most common lesion. Congenital heart disease was present in 18.3% patients, 8.2% with previous cardiac diseases. Cardiomyopathy was the most common cardiac disease in the miscellaneous group, constituting 9 (8.2%).

**Table 2: Maternal outcome of pregnancy in term of mode of delivery, morbidity and mortality**

Mode	Number of patients	Percentage of patients
LSCS	49	44.9%
Vaginal Delivery Spontaneous	21	19.2%
Vaginal Delivery Induced	5	4.5%
Instrument Delivery	25	22.9%
MTP	9	8.2%
ICU admission	15	13.7%
Maternal deaths	3	2.7%

In table 2: Majority of women delivered by cesarean section - 49(44.9%). 21(19.2%) subjects had a normal vaginal delivery with spontaneous onset of labour and 5 (4.5%) had induced normal vaginal delivery. 25 (22.9%) had assisted instrumental vaginal delivery, MTP accounts for 8.2 %. 13.7% patients underwent ICU admission following intubation and for

monitoring purpose. 3 maternal deaths were noted, causes being heart failure(2) and pulmonary oedema(1).

**Table 3: Perinatal outcome of pregnancy in women with heart disease**

Perinatal outcome		Number	Percentage
Birth	Live	109	100%
	Stillbirth	0	0
Gestational age at birth	<37 weeks	33	30%
	>37 weeks	76	70%
Birth weight	<2.5 kg	34	31%
	>2.5 kg	75	69%
Apar score	>9	82	75.2%
	<9	27	24.7%
NICU admission	Yes	42	38.5%
	No	67	61.4%
Congenital heart disease		7	6.4%
Neonatal death		No	No

Table 3: Out of 109 patients, seven (8.2%) women had first trimester abortions. There were about 109(100%) live births observed in these women. 70% babies were born at term while 30% were preterm births. 69% newborns had normal weight while 31% weighed <2.5 kg. Among Apgar > 9 in 75.2% and <9 in 24.7%, 38.5% was the NICU admission rate. 6.4 % newborns had congenital heart diseases .No neonatal deaths were noted.

## Discussion

This study aimed at assessment of maternal and neonatal complications associated with cardiac disease in pregnancy. Various studies estimated that 0.3% to 3.5% of all pregnancies are complicated by heart disease. In the present study, the prevalence of 6.1% was found which was similar to that of the study conducted by puri s et al [11]. In the current study Rhd (65.1%) was the principal cardiac lesion and mitral stenosis was the most common cardiac lesion (45%). These results were in consensus with vidyadhar et al [13], mazhar sb et al [6], devabhaktuni et al [5], and n bhatla et al [3]. However, incidence of rhd has been greatly reduced in developed countries by widespread use of antibiotics effective against the streptococcal infections. Thus current study indirectly indicates inadequate treatment of streptococcal infections in childhood and adolescence. Echocardiography was done routinely in our patients.

In this study, 19.2% women had spontaneous vaginal delivery as compared to 41% (Nilajkumar et al [7]); 24% (Alireza et al [2]); 76.2% (Mazhar et al [6]); 73.5% (Hameed et al [1]); 62.8% (Vidyadhar et al [13]) in other studies. Cesarean section (44.9%) was done only for obstetrical indications. nilajkumar et al [7] reported caesarean in 20.6%; 9.5% by mazhar et al [6]; alireza et al [2] (76%). In the present study, 4.5 of women underwent labour induction as compared to 15% in study conducted by hameed et al [1] and pratibha d et al [5]. In the evaluation of pregnancy with cardiac disease 7.8.2% had to undergone MTP which was comparable to suman et al [11] and mazhar et al [6] studies. Mortality in pregnant females with cardiac disease is mainly due to cardiac failure and pulmonary oedema and there were 2.7% deaths in our study which was comparable to syeda sayeeda et al [8] and shanaj sharmin et al studies. In our study 30% patients delivered before term i.e <37 weeks of gestation and 70% delivered at term i.e after >37 weeks of gestation which is comparable to the study by shahanaj sharmin et al [9]. In our study 31% newborns were low birth weight while 69% weighed >2.5 kg which was also comparable to the study by shanaj sharmin et

al.[9]. All pregnancies ended in live birth, and no still births were noted which was comparable to mazhar et al [6] study.

### Conclusion

In our study we saw a low incidence of maternal mortality and a decent foetal outcome in pregnant women with heart disease. This emphasises that Careful history taking and clinical examination remains the key to diagnosing heart disease early. A multi-speciality team approach in institutions experienced in caring for such patients should help considerably in reducing the impact of cardiac disease on the mother and the foetus.

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