



STUDY OF HEART DISEASE IN PREGNANCY IN A TERTIARY CARE CENTRE OF EAST INDIA

Obstetrics & Gynaecology

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ABSTRACT

BACKGROUND Heart disease in pregnancy in India is less common but is associated with significant maternal and foetal adversities. It is also an important indirect cause of maternal mortality. Hence, the present study was done to study the types of cardiac lesions seen with pregnancy and find the materno-fetal outcome.

MATERIAL AND METHOD This was a retrospective study done on 141 cases of pregnant women with heart disease presenting to labour room emergency of Patna Medical College Hospital from January 2019 to December 2019. The data analysis was done by Microsoft excel.

RESULT Majority of women with heart disease were multigravida (61.7%) and in the age group of 25-30 years (28%). Most cases belonged to NYHA grade 1 and 2 (64.54%). The most common cardiac lesion was Rheumatic heart disease (66%). Congenital heart disease was present in 23.4% cases. Majority of cases delivered vaginally (74.5%). Most common associated medical comorbidity was anemia which was present in 38.3% cases. Heart failure was present in 16.4% cases. PIH was associated in 6.3%. Mortality occurred in 3.5% patients. Live birth occurred in 87.2% cases. 14.9% babies were born premature and IUGR was present in 23.4%.

CONCLUSION Multidisciplinary approach for early diagnosis and intervention remains the key to management of cardiac patients in pregnancy. Preconception counseling should be done to prevent complications.

KEYWORDS

heart disease, pregnancy outcome, tertiary care centre

INTRODUCTION

Cardiac disease is an important cause of indirect maternal morbidity and mortality in pregnancy, with a reported incidence of 2% in pregnancies in India [1]. The incidence in western countries is 0.2-0.4% [2]. It is one of the common indirect obstetric causes of maternal death [3]. Normal physiologic changes that occur during pregnancy can exacerbate symptoms of underlying cardiac disease even in previously asymptomatic patients. Therefore pre-existing heart disease in females particularly (mitral/aortic) valvular stenosis congenital or acquired abnormality with pulmonary hypertension or Right to Left shunts, CCF due to any cause & coronary heart disease should be counselled in advanced about risk of pregnancy [4]. Cardiac assessment of the pregnant patient can be difficult as common symptoms of pregnancy, such as breathlessness and fatigue, can mimic cardiac symptoms. Also, clinical signs, such as mild dependent oedema, a minimally raised jugular venous pressure, collapsing pulses and an ejection systolic murmur, are common in pregnancy and can result in difficult assessments [5]. Signs and symptoms which are abnormal in pregnancy include extreme breathlessness, marked oedema, a fourth heart sound, diastolic murmurs, jugular venous pressure of >2 cm and a persistent tachycardia of >100 beats per minute; any one of these should prompt further evaluation [6].

Rheumatic heart disease is the commonest cause of heart disease complicating pregnancies in developing countries like India but in western countries Congenital heart disease is most common. This may be due poor socioeconomic environment and untreated streptococcal infections in childhood in developing countries. Due to recent advances in cardiology more and more patients of congenital heart disease reach the age of pregnancy now, so incidence of congenital heart disease with pregnancy is also rising.

ACOG (2019) recommends the use of California CVD toolkit to prevent heart disease related mortality in pregnancy. CARPREG scoring system, WHO scoring system and ZAHARA score have been commonly accepted to stratify the risk of complications in cardiac patients.

AIMS AND OBJECTIVES

1. To study the types of lesions in heart disease affecting pregnancy,
2. To determine the maternal and fetal outcome.

MATERIAL AND METHODS

This was a retrospective study done at a tertiary care centre of Patna, Bihar. 141 cases of pregnant patients with heart disease visiting the labour room emergency of Patna Medical College and Hospital from January 2019 to December 2019 were included in the study.

Inclusion criteria- all patients of heart disease >28 weeks of period of gestation.

Hospital records were analysed and all the findings of history, physical examination, systemic examination, investigations –[routine, ECG, ECHO], cardiologist consultations, mode of delivery, maternal and foetal complications were recorded.

Statistical analysis was done using Microsoft excel.

RESULT

TABLE 1-TYPES OF HEART DISEASE AND NYHA GRADE

TYPE OF HEART DISEASE	NUMBER (n=141)	PERCENTAGE (%)
RHD	93	66
CHD	33	23.4
PSVT	6	4.2
HOCM	3	2.1
IHD	3	2.1
LBBB	3	2.1
HISTORY OF SURGERY		
BMV	12	8.5
PROSTHETIC VALVES	6	4.2
NYHA GRADES		
1	50	35.46
2	41	29.08
3	42	29.79
4	8	5.67

Majority of women with heart disease were multigravida (61.7%) and primigravida were 38.3%. The majority of women were in the age group of 25-30 years (28%). Most cases belonged to NYHA grade 1 and 2 (64.54%). The most common cardiac lesion was Rheumatic heart disease (66%). Congenital heart disease was present in 23.4% cases (Table 1).

Majority of cases delivered vaginally (74.5%). Most common associated medical comorbidity was anemia which was present in 38.3% cases. Heart failure was present in 16.31% cases. PIH was associated in 6.3%. Mortality occurred in 3.5% patients. Live birth occurred in 87.2% cases. 14.9% babies were born premature and IUGR was present in 23.4% (Table 2).

TABLE 2-MATERNAL OUTCOME AND FOETAL OUTCOME

MODE OF DELIVERY	NUMBER (n=141)	PERCENTAGE (%)
VAGINAL	105	74.5
-SPONTANEOUS	85	80.95
-INDUCED	20	19.05
LSCS	36	25.5
NON CARDIAC COMPLICATIONS		

ANEMIA	54	38.3
PREECLAMPSIA	9	6.3
HYPOTHYROID	3	2.1
CARDIAC COMPLICATIONS		
HEART FAILURE	23	16.31
PULMPNARY EDEMA	9	6.4
ATRIAL FIBRILLATION	3	2.1
MORTALITY	5	3.5
FOETAL OUTCOME		
LIVE BIRTHS	123	87.2
IUD	18	12.8
PRETERM	21	14.9
POSTDATED	4	2.8
VLBW	12	8.5
LBW	36	25.5
CONGENITAL ANOMALY	2	1.48

DISCUSSION

The incidence of heart disease in my study was 1.21%. Similar incidence was reported by Sethuraman et al(0.96%) and Sneha P et al(0.89%)[7,8].

87 out of 141 (61.7%) patients were multigravida. Similar finding was seen by Sneha P et al (58.33%)[8]. Pujitha KS et al showed primigravida were more affected [9].

Maximum patients belonged to NYHA class 1(19.86%) and NYHA class 2(68.09%).Only 12.05% patients belonged to NYHA class 3 and 4. Similar finding was seen in other studies [8, 9]. This may be due to either severe grade lesion patients either did not reach child bearing age or did not conceive on advice or own desire.

Majority of patients were in the age group of 26-30 years (28%). This was similar to study by Joshi G et al[10]. Other studies showed 20-25 years to be most common age group[8,11].

Most common cardiac disease seen in my study was Rheumatic heart disease which was seen in 93 out of 141 patients(66%).This was similar to other studies done in past[8,9,10,11].

Second most common cardiac disease was Congenital heart disease which was seen in 33 out of 141 cases (23.4%). Similar incidence was seen by Pujitha KS et al (21.8%)[9].

Maximum patients delivered vaginally (74.5%).This was similar to previous study by Joshi G et al (71.4%)[10]. Out of these 85 were spontaneous vaginal deliveries and 20 were induced for either IUD or postdatism. Vaginal delivery is preferred and labour induction is usually safe [12]. Epidural analgesia was given in almost all cases to prevent tachycardia .Second stage of labour was cut short by application of ventouse or forceps in 33 cases. 25.5% underwent LSCS due to obstetric indications and most common indication was previous caesarian delivery. Other studies showed LSCS done in 18.75%, 29% and 41.67% cases [9,11,8].

Most common cardiac complication seen was cardiac failure seen in 16.31% of cases. This was similar to finding by Joshi G et al[10].This was followed by pulmonary edema seen in 6.4% cases. Cardiac failure and pulmonary edema is precipitated by increased cardiac overload which becomes remarkable at 32 weeks and especially after delivery. This can be prevented by making patients in sitting position, restricting intravenous fluids and use of diuretics when necessary after delivery.

Most common non cardiac associated comorbidity was anemia (38.3%) followed by preeclampsia seen in (6.3%). Biswas S et al found 46% of cardiac patients to be anemic and 4% hypertensive which was similar to my study[13].

Mortality occurred in 3.5% of cases which was due to congestive cardiac failure in all cases. The mortality rate was similar to studies done by Pujitha KS et al(3.12%)[9]. Other studies showed mortality rate to be 2.79% and 4.8%, [8,10]. The cause of death in other studies was due to peripartum cardiomyopathy, pulmonary edema or heart failure[8,9,10].

Livebirth rate was 87.2%. Other studies showed livebirth rate to be 90.5%[10].18 cases were diagnosed with IUD which were all

delivered vaginally.

14.9% preterm births occurred. Other studies showed premature births in 27.27% and 42.1%[8,10]. 2.8% were post dated.

23.4% were associated with IUGR. This was probably due to decreased uterine blood flow due to valvular stenosis. Sneha P et al showed IUGR in 5.55% cases and it was the most common foetal complication[8].

Biswas et al in his study showed that the risk of foetal complications like- IUD, prematurity, LBW increased with higher NYHA grade of mother's cardiac disease[13].

2 cases of congenital abnormality was seen in my study. The risk of inherited congenital disease is 3.5% compared to 1% in general population[14].

CONCLUSION

Women with undiagnosed (pre existing) heart disease are likely to present to obstetricians and not to a cardiologist. A timely diagnosis therefore requires clinical awareness and anticipation on part the primary caregiver.

The management begins from preconceptional counseling and planned pregnancies. This should follow multidisciplinary approach involving obstetricians, cardiologists, radiologists, anaesthesiologists etc. Timely differentiation between normal pregnancy and heart disease will save many lives.

Pregnancy with cardiac disease has increased risk of maternal complications hence proper ANC, intranatal care and PNC becomes the crux of prevention and management.

Due to the increased risk of foetal complications-IUD, prematurity, IUGR etc. regular foetal surveillance by USG, NST, Doppler alongwith clinical assessment becomes mandatory for pregnancies with cardiac disease.

LIMITATION OF STUDY

- Single centre study.
- Analysis was only done for third trimester of pregnancy.
- Routine ANC cases were not evaluated and only IPD cases were evaluated.
- Long term follow up was not done.

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CONFLICTS OF INTEREST: None declared.

Ethical approval

Study was approved by the Institutional Ethical Committee.

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