International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Rampariya DB et al. Int J Reprod Contracept Obstet Gynecol. 2026 Aug;15(8):3067-3070
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20262535

Original Research Article

A clinical study of maternal outcome in women with heart disease in pregnancy at tertiary care centre

Dixitaben B. Rampariya, Falguni Patel*

Department of Obstetrics and Gynaecology, EW Civil Hospital, Surat, Gujarat, India

Received: 25 May 2026
Revised: 19 June 2026
Accepted: 01 July 2026

***Correspondence:**
Dr. Falguni Patel,
E-mail: dixitarampariya@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Cardiac disease in pregnancy is a high-risk pregnancy and it complicates 2% of all pregnancies and contributes to about one fifth of all maternal deaths.
Methods: This was a prospective observational study conducted in Department of Obstetrics and Gynaecology, enrolling 50 consecutive subjects fulfilling inclusion criteria of pregnancy with heart disease admitted in OBICU, labour room, antenatal and postnatal wards of a tertiary health care centre, New Civil Hospital, Surat, Gujarat over a period of around 1 year.
Results: Majority of our patients belonged to age group of 25-35 years (56%) and urban residence (70%). 50% of our subjects were already booked case and 56% were multiparous. 78% were enrolled in last trimester. Majority of our patients, 70% had undergone LSCS. 42% were presented with dyspnoea. 68% had acquired heart disease. RHD is the most common cardiac disease. Heart failure is the most common cardiac complications. Hypertension is most common non-cardiac complications associated with pregnancy with cardiac disease.
Conclusions: The management of pregnancy with cardiac disease requires to strengthen preconception counselling and early registration at tertiary health care center for risk assessment, optimizing cardiac status and planning appropriate care and multidisciplinary approach to reduce maternal morbidity and mortality.

Keywords: Rheumatic heart disease, Congenital heart disease, Maternal outcome

INTRODUCTION

Cardiac disease in pregnancy is a high-risk pregnancy which possess a significant challenge to an obstetrician. Cardiac disease and pregnancy affect each other adversely during the course, hence proper management through early diagnosis, risk stratification, multidisciplinary care and timely intervention is essential to reduce maternal and perinatal morbidity and mortality.[1]

Rheumatic valvular heart disease is most common cause in developing countries, comprising 56-89% of all cardiovascular disease in pregnancy.[2] Advances in paediatric cardiac surgery have improved survival rates among children with congenital heart disease, leading to an increasing number of women with repaired or unrepaired congenital cardiac lesions reaching reproductive age.[3] Peripartum cardiomyopathy is the most frequent cause of severe complications.[4]

Cardiac disease in pregnancy leads to Cardiac complications like arrhythmias, heart failure, pulmonary oedema, pulmonary artery hypertension, thromboembolism etc. and non-cardiac complications like infections, preterm labour, anaemia, haemorrhagic shock, PPH, hypertension etc.[5] The prognosis of pregnancy with cardiac disease depends on type, duration, severity of cardiac disease, age, presence of any other comorbidities and quality of medical care. Hence, risk assessment is

crucial for identifying potential maternal and foetal complications.[7]

METHODS

Study setting

Department of Obstetrics and Gynaecology, Government Medical College, Surat, Gujarat.

Duration of study

The study was carried out from May 2025 to April 2026

Inclusion criteria

All consenting antenatal, intranatal and postnatal (up to 42 days post-partum) mothers having heart disease admitted in OBICU, labour room, antenatal and postnatal ward of Obstetrics and Gynaecology department of tertiary care hospital.

Exclusion criteria

Patients with pre-existing heart disease and women who did not provide informed consent were excluded from the study. These exclusion criteria were established to ensure patient safety and to include only participants who willingly consented to participate in the research.

Statistical and measuring tool

The study was done with a pre-designed proforma. For every case, information like age, parity, residence, gestational age, presenting cardiac complaints, aetiology of congenital and acquired heart disease, mode of delivery, maternal complications were recorded.

Brief methodology

All consenting pregnant women with heart disease admitted in tertiary health care centre of South Gujarat were enrolled in this study. All mothers and babies were followed till discharged from hospital.

Ethical approval

Ethical approval was granted by Human Resource Research Committee, confidentiality was maintained.

RESULTS

A total 50 pregnant women with cardiac disease were analysed in this study. The incidence of cardiac disease in our hospital is 0.54%. Most of the subjects (56%) belonged to the active reproductive age group of 25-35 years. 70% of the subjects were from urban areas. 50% of subjects were booked patients. Majority of our subjects, 56% were multiparous. Majority of patients approx. 78% were enrolled in last trimester from 28-40 weeks of gestation. Majority of our patients,70% had undergone lower section caesarean section.

Table 1: Demographic characteristics.

Demographic characteristics	Number (N)	Percentage (%)
Age (years)		
18-24	20	40
25-35	28	56
>35	2	4
Residence		
Urban	35	70
Rural	15	30
Booked/unbooked status		
Registered	25	50
Referred	17	34
Emergency	8	16
Parity		
Primipara	22	44
Multipara	28	56
Gestational age at enrolment (weeks)		
<14	1	2
14-27	5	10
28-40	39	78
Post delivery	5	10
Mode of delivery		
Vaginal	9	18
Instrumental	2	4
LSCS	35	70
Expulsion of abortus	2	4
Hysterotomy	1	2
Laparotomy	1	2

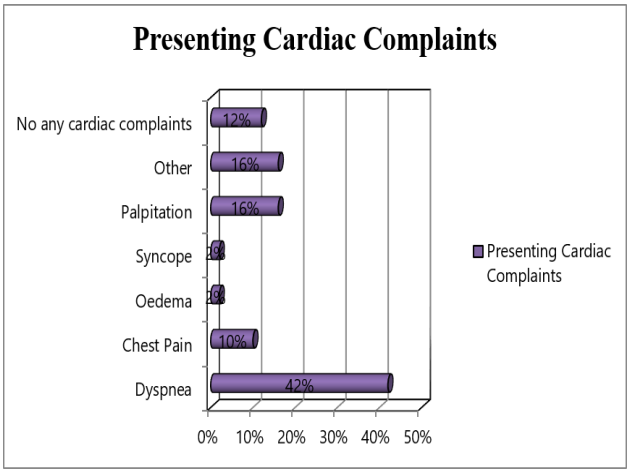

Figure 1: Presenting cardiac complaints.

Majority of patients approx 42% having dyspnoea as the presenting cardiac complaint in pregnancy with heart disease. 16% of patients admitted with other complaints like nocturnal cough, fever, fatigue, haemoptysis etc.

Table 2: Aetiology of cardiac disease.

Aetiology of cardiac diseases	N	Percentage (%)
Congenital heart disease	16	32
Atrial septal defect	3	18.75
Ventricular septal defect	5	31.25
Eisenmenger syndrome	3	18.75
Single functional ventricle	1	6.25
Patent ductus arteriosus	2	12.5
Pulmonary stenosis	2	12.5
Acquired heart disease	34	68
Rheumatic heart disease	19	55.88
Cardiomyopathy	15	44.11

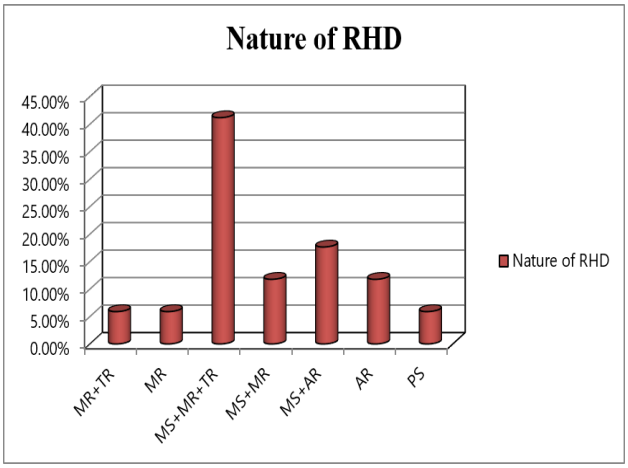

Figure 2: Nature of rheumatic heart disease.

Table 3: Maternal complications.

Complications	Ante-partum N (%)	Intra-partum N (%)	Post-partum N (%)
Cardiac complications			
Arrhythmia	8 (16)	2 (4)	12 (24)
Heart failure	23 (46)	4 (8)	14 (26)
Pulmonary oedema	19 (38)	_	7 (14)
PAH	14 (28)	_	8 (16)
Thrombo-embolim	_	_	3 (6)
Non-cardiac complications			
Infections	7 (14)	_	8 (16)
Preterm labour	12 (24)	_	_
Anaemia	14 (28)	_	3 (6)
Hypertension	14 (28)	_	14 (28)
Eclampsia	1 (2)	1 (2)	3 (6)
Haemorrhagic shock	_	1 (2)	1 (2)
PPH	_	1 (2)	_

Among rheumatic heart disease, mitral stenosis with mitral regurgitation with tricuspid regurgitation is the most common lesion. Mitral valve is most commonly involved valve in rheumatic heart disease.

DISCUSSION

This prospective observational study was conducted in Department of Obstetrics and Gynaecology, enrolling 50 consecutive subjects fulfilling inclusion criteria of pregnancy with heart disease admitted at New Civil Hospital, Surat, Gujarat over a period of around 1 year. Incidence of cardiac disease in this study is 0.54%. Which was comparable to other studies like, Keerti Chaudhary, Rupa Vyas, Ritanjali Behera, Priyanka Chaudhari et al.[10,11,12,15]

In present study 56% of the women belonged to 25-35 years of age. Similar findings were observed in Priya Gupta et al.[12] In our study, 70% of the subjects were from urban areas and 30% from rural areas.

In our study, 50% of subjects were booked patients. Among 50% of Unbooked patients, 34% of patients were referred from primary (PHCs) and secondary (CHCs/district hospital) health care centre and 16% of patients were admitted as Emergency with majority of them having cardiac complaints.

56% of patients were multiparous, which can be due to increase in the severity of cardiac disease as age progresses and parity increases. 78% were enrolled in 3rd trimester. This data is also comparable to other studies like Khushboo Goel, Nitin Jain et al.[13,14]

70% of patients had undergone lower section caesarean section. Majority of them were taken for cardiac indications as opined by cardiologist and physician. Only 18% of the subjects had vaginal delivery. 4% of patients had instrumental delivery. As, forceps and vacuum uses during delivery to cut short the second stage of labour that require for pregnancy with cardiac disease.

Dyspnoea were the presenting cardiac complaints in majority of subjects. Among 16 patients with congenital heart disease, 31% having ventricular septal defect. Majority of our subjects had acquired heart disease constituting 68%. Among them, 55.88% of patients having rheumatic heart disease and 44.11% of our subjects having cardiomyopathy.

Most common cardiac complications developed in our study was congestive heart failure followed by pulmonary oedema. Pregnancy increases workload of heart that leads to potentially worsening of underlying conditions and heart failure that observed in majority of our patients. Hypertension followed by anaemia were the most common non-cardiac complications observed in our study.

CONCLUSION

Cardiac disease in pregnancy significantly contributes to maternal and fetal morbidity and mortality, making these as a high-risk pregnancy for both mother and baby. Though incidence of rheumatic heart disease has declined due to early antibiotic treatment of streptococcal infections, RHD is the most common cardiac disease (55.88%) followed by congenital heart disease (32%) in our study. In pregnancy, incidence of CHD increases due to advances in cardiothoracic surgeries that lead to more women with CHD to reach reproductive age. Rising incidence of cardiomyopathy (44.11%) is alarming. Cardiomyopathy was the most common cause of maternal mortality (10%) in our study. So, 2D echocardiogram is advisable in all high-risk mothers in early antenatal period and we need to strengthen our diagnostic and management protocols of cardiomyopathy in pregnancy. Majority of our subjects (90%) required obstetric ICU admission. Cardiac complications like arrhythmias, heart failure, pulmonary edema, PAH, thromboembolism etc. and non-cardiac complications like preterm labor, anemia, hypertension, infections, hemorrhage etc. observed in antepartum, intrapartum and postpartum period. So, multidisciplinary approach involving obstetrician, cardiologist, neonatologist, intensivist required for better fetomaternal outcome.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Human Resource Research Committee

REFERENCES

1. American College of Obstetricians and Gynecologists. Pregnancy and heart disease. ACOG Practice Bulletin No. 212. Obstet Gynecol. 2019;133(5):e320-56.
2. Weiss BM, Von Segesser LK, Alon E, Seifert B, Turina MI. Outcome of cardiovascular surgery and pregnancy: A systematic review of the period 1984–1996. Am J Obstet Gynecol. 1998;179:1643-53.
3. Peterson EE, Davis NL, Goodman D, Cox S, Syverson C, Seed K, et al. Vital signs: Pregnancy-related deaths, United States, 2011–2015, and strategies for prevention, 13 states, 2013–2017. MMWR Morb Mortal Wkly Rep. 2019;68(18):423-9.
4. Pearson GD, Veille JC, Rahimtoola S, Hsia J, Oakley CM, Hosenpud JD, et al. Peripartum cardiomyopathy: National Heart, Lung, and Blood Institute and Office of Rare Diseases (National Institutes of Health) workshop recommendations and review. JAMA. 2000;283(9):1183-8.
5. Creanga AA, Syverson C, Seed K, Callaghan WM. Pregnancy-related mortality in the United States, 2011–2013. Obstet Gynecol. 2017;130(2):366-73.
6. mall MJ, James AH, Kershaw T, Thames B, Gunatilake R, Brown H. Near-miss maternal mortality: Cardiac dysfunction as the principal cause of obstetric intensive care unit admission. Obstet Gynecol. 2012;119(1):250-5.
7. James DK, Steer PJ, Weiner CP, Gonik B, Crowther CA, Robson SC, editors. High Risk Pregnancy: Management Options. 5th ed. Philadelphia: Elsevier; 2017.
8. Lalonde A, Herschdorfer K. Postpartum haemorrhage today: ICM/ FIGO initiative 2004 – 2006. Int J Gynecol Obstet. 2006;94:243-53.
9. Asghar F, Kokab H. Evaluation and outcome of pregnancy complicated by heart disease. JPMA. 2005;55:416.
10. Chaudhari P, Gupta V, Kumari N, Tandon A, Gupta N. Maternal and perinatal outcomes of pregnancies complicated by cardiac disease at tertiary level hospital of Uttarakhand. Int J Reprod Contracept Obstet Gynecol. 2017;6:3338-42.
11. Chaudhary K, Sen S. Fetomaternal outcomes in pregnancy with different cardiac disease at a tertiary care center in Udaipur. Int J Reprod Contracept Obstet Gynecol.2020;9:3983-8.
12. Vyas R, Gupta P, Shah S, Rangoliya K. Cardiovascular disease in pregnancy. Int J Reprod Contracept Obstet Gynecol 2019;8:3789-93.
13. Jain NK, Sultan S. Study of heart disease in pregnancy and its effect on maternal outcome. Int J Reprod Contracept Obstet Gynecol. 2019;8:3031-6.
14. Goel K, Tambe SG. A study to evaluate pregnancy with maternal heart disease: a prospective observational study at a tertiary care centre in India. Int J Reprod Contracept Obstet Gynecol 2021;10:1637-43.
15. Behera R, Moharana JJ. Maternal and fetal outcome in cardiac disease in pregnancy: a retrospective study at tertiary care center. Int J Contracept Obstet Gyneco.l 2018;7:4399-402.
16. Roos-Hesselink JW, Duvekot JJ, Thorne SA. Pregnancy in women with cardiac disease. Heart. 2009;95(8):680-6.

Cite this article as: Rampariya DB, Patel F. A clinical study of maternal outcome in women with heart disease in pregnancy at tertiary care centre. Int J Reprod Contracept Obstet Gynecol 2026;15:3067-70.