

CLINICAL PROFILE AND OBSTETRIC OUTCOME IN PREGNANCY WITH CARDIAC DISEASE

Sreelatha S¹, Bharathi A², Priyanka Jogi³

HOW TO CITE THIS ARTICLE:

Sreelatha S, Bharathi A, Priyanka Jogi. "Clinical Profile and Obstetric Outcome in Pregnancy with Cardiac Disease". Journal of Evidence Based Medicine and Healthcare; Volume 1, Issue 6, August 2014; Page: 322-327.

ABSTRACT: BACKGROUND: Cardiac disease is major cause of maternal mortality and morbidity in pregnant women. In developed country, CHD is more prevalent, whereas in developing nation RHD is major cause of maternal heart disease. **METHODS:** A prospective study conducted at ESIC MC PGIMSR, Rajajinagar, Bangalore involving patients with cardiac disease in pregnancy. **RESULTS:** Past H/O heart disease was present in 96.15%. RHD was present in 48.07% and CHD in 46.15%. Mitral regurgitation (28.68%) was the commonest valvular disease. Spontaneous vaginal delivery was seen in 50% and cesarean section in 50%. **CONCLUSION:** Pregnancy with the heart disease is associated with significant cardiac and neonatal complications, despite the improved obstetric and cardiac care.

KEYWORDS: RHD, CHD, pregnancy, IHD, Complication.

INTRODUCTION: Cardiac diseases complicate 1% of pregnancies, the commonest being rheumatic heart disease.¹ Cardiac disorders contribute to approximately 20.5% of maternal deaths.² With the advent of modern therapeutic options, more and more women with cardiac disease are reaching the reproductive age and are attempting pregnancy multiple times. Obstetric complications like preeclampsia, anemia, preterm labor and fetal growth restriction are more common in patients with heart disease.

In developing countries, rheumatic heart disease is common, whereas, in developed countries congenital heart disease is common. Recognizing heart disease during pregnancy is challenging because the physiological changes during pregnancy can cause symptoms and signs mimicking cardiac disease. Physiological changes in pregnancy include increase in blood volume by 40 to 50 percent, increase in cardiac output by 30-40% and increase in heart rate by 10-15 beats per minute and second trimester fall in blood pressure due to decrease in the peripheral resistance.

The aim of the present study is to analyze the pattern of heart disease complicating pregnancy and also associated obstetric and medical complications and maternal and fetal outcome.

METHODS: It is a prospective study conducted in the department of OBG, at ESIC MC AND PGIMSR, Rajajinagar, Bangalore for the period of 2 years from 2011-13.

All pregnant women with the known cardiac disease were enrolled to our study (n=52). As soon as the patient is reported to antenatal clinic following baseline data were recorded. Age, parity, gestational age, NYHA functional class, co-morbid conditions like anemia, PIH and prior cardiac events, type of cardiac lesions, medications were recorded. Follow up data were obtained

ORIGINAL ARTICLE

from clinical visits during IInd, IIIrd trimester, peripartum period (onset of labour until discharge), 6 wks and 6 months postpartum. Maternal outcome (mode of delivery, associated complications like cardiac failure and arrest, PPH etc) and neonatal outcome (birth weight and apgar score) was assessed.

RESULTS:

18-21	6	11.3%
22-25	24	46.15%
26-30	20	38.46%
31-35	2	3.84%

Table 1: Age in yrs

Mean age of the patient was 25 yrs. Most patients were in the age group 22-25 yrs (table 1) (min-19 yrs and max-33 yrs).

Primi	21	39.62%
Multi	31	58.49%

Table 2: Parity

In our study multigravida (58.49), were more common than primi (39.62%)(table 2). Gestational age at admission was 37 completed weeks.

Congenital heart disease	24	46.15%
Rheumatic heart disease	25	48.07%
Ischemic heart disease	1	1.9%
Arrhythmia	1	1.9%
Marfan's syndrome	1	1.9%

Table 3: Type of cardiac disease

Past h/o heart disease was present in 50 (96.15%) cases. RHD was observed in 48.07% of patients, CHD in 46.15% patients, IHD, arrhythmia, Marfan's syndrome in 1.9 % respectively (table 3). All pts were belongs to NYHA class II.

ORIGINAL ARTICLE

Cardiac Lesion	Corrected	uncorrected	
ASD	7		13.46%
VSD		1	1.9%
PDA	1		1.9%
Situs inversus	-	3	5.7%
MVP	-	5	9.6%

Table 4: Types of congenital heart disease

Cardiac defects was corrected in 15.36% in which ASD was common (table 4).

Valvular lesion	corrected	Uncorrected	
MS+MR+PHTN		3	5.7%
MR		8	15.38%
MS	7		13.46%
MR+MVP		4	7.6%
AR		1	1.9%
TR		2	3.8%

Table 5: Rheumatic heart disease

MR (28.68%) is more common valvular lesion than MS(19.16) in our study(table 5).

Obstetric complications included anemia seen in 5.76% (3 pts) of pts in which one patient received blood transfusion.

Full term vaginal delivery	21	40.38%
Preterm vaginal delivery	2	3.8%
Instrumental delivery	3	5.76%
LSCS	26	50%

Table 6: Mode of delivery

Spontaneous vaginal delivery was seen in 50% of pts, out of which preterm delivery was seen in 3.8% of cases and 5.76% cases had instrumental delivery. 50% of cases had caesarean section (table 6). Indications were previous LSCS (76.92%) and malpresentations were 23%. There were no intrapartum and postpartum complications. Only one patient was in ICU because of IHD.

<2.5kg	12	23.07%
2.5-3kg	33	63.46%
3-3.5kg	7	13.46%

Table 7: Weight of the baby at birth

ORIGINAL ARTICLE

Neonatal outcome: Low birth weight was seen in 23.07% of cases (table 7). Apgar score was 8 at 1 min in 28 patients and 7 in 24 patients and 9 and 8 at 5 min respectively. No NICU admissions.

DISCUSSION: In present study, most of the patients were young and multi and past h/o heart disease was present in 96.15% of cases.

Irrespective of the type of underlying cardiac disease, mitral stenosis was the commonest valvular lesion in accordance with other authors.^{3, 4, 5} Mitral valve affection has the potential of leading to most ominous consequences.⁶ Mitral regurgitation was the second commonest lesion in other studies.^{7, 8} but in our study it was not correlated because of less number of patients. MR is well tolerated during pregnancy and mild regurgitation poses a low risk of complications.⁹ A recent Brazilian study however reported that cardiac adaptations in women with mitral regurgitation are dissimilar from normal women and optimal cardiac remodeling does not occur in these patients.¹⁰

Cesarean section was performed for obstetric indication in 50% of cases in our study in contrast to 20.6% according to Bagde ND et al.¹¹

A pregnant woman with large uncorrected ASD, although pregnancy is generally well tolerated in women with ASD, the risk of thromboembolic complications and arrhythmias is increased.¹²

IHD is seldom encountered during pregnancy, although the incidence is increasing and it was found to be an important contributor to maternal mortality in British enquiry 'Savings Mothers Lives'.^{13, 14, 15} In our study one case was reported which need ICU care.

In all but the heart disease associated with the lowest risk (such as repaired ASD, VSD or PDA, small ASD or VSD and mild pulmonary stenosis) the safety of pregnancy for both mother and fetus will improve when pregnancy is carefully planned. A full clinical investigation is indicated before pregnancy. This includes physical examination, oxygen saturation, ECG, echo and exercise testing.

CONCLUSION: Pregnancy in patients with heart disease results in a maternal mortality of 1%, which is a hundred times higher than in normal pregnant patients. In women at high risk for cardiac events, cardiac interventions should be considered before conception if the risk-benefit ratio is favorable. Women at intermediate or high cardiac risk (risk ratio >1 or with lesion-specific risk factors) should be referred to a regional center for ongoing care. Those at low cardiac risk (risk score of 0 and without lesion-specific risk factor) can safely deliver in a community hospital. Women with risk factors for maternal cardiac or neonatal complications may require increased frequency of follow up.

REFERENCES:

1. Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY, editors. Williams Obstetrics. 23rded. Cardiovascular Disease. United States of America: McGraw-Hill Companies; 2010. P 315.

ORIGINAL ARTICLE

2. Burlingame J, Horiuchi B, Ohana P, Onaka A, Sauvage LM. The contribution of heart disease to pregnancy-related mortality according to the pregnancy mortality surveillance system. *J Perinatol* 2012; 32: 163-9.
3. Bhatla N, Lal S, Behera G, Kriplani A, Mittal S, Agarwal N, et al. Cardiac disease in pregnancy. *Int J Gynaecol Obstet* 2003; 82: 153-9.
4. Sawhney H, Aggarwal N, Suri V, Vasishta K, Sharma Y, Grover A. Maternal and perinatal outcome in rheumatic heart disease. *Int J Gynaecol Obstet* 2003; 80: 9-14.
5. Nqayana T, Moodley J, Naidoo DP. Cardiac disease in pregnancy. *Cardiovasc J Afr* 2008; 19: 145-51.
6. Essop MR, Nkomo VT. Rheumatic and non-rheumatic valvular heart disease: epidemiology, management, and prevention in Africa. *Circulation* 2005; 112: 3584-91.
7. Grover A, Dhawan A, Iyenger SD, Anand IS, Wahi PL, Ganguly NK. Epidemiology of rheumatic fever and rheumatic heart disease in a rural community in northern India. *Bull World Health Organ* 1993; 71: 59-66.
8. Diao M, Kane A, Ndiaye MB, Mbaye A, Bodian M, Dia MM, et al. Pregnancy in women with heart disease in Sub-Saharan Africa. *Arch Cardiovasc Dis* 2011; 104: 370-4.
9. Regitz-Zagrosek V, Seeland U, Geibel-Zehender A, Gohlke-Barwolf C, Kruck I, Schaefer C. Cardiovascular diseases in pregnancy. *Dtsch Arztebl Int* 2011; 108: 267-73.
10. Borges VT, Matsubara BB, Magalhaes CG, Peracoli JC, Rudge MV. Effect of physiological overload on pregnancy in women with mitral regurgitation. *Clinics (Sao Paulo)* 2011; 66: 47-50.
11. Bagde ND, Bagde MN, Shivkumar PV, Tayade S. Clinical profile and obstetric outcome in pregnancies complicated by heart disease: a five year Indian rural experience. *Int J Reprod Contracept Obstet Gynecol* 2013; 2: 52-57.
12. Drenthen W, Pieper PG, Roos-Hesselink JW, Van Lottum WA, Voors AA, Mulder BJ, et al. Outcome of pregnancy in women with congenital heart disease: a literature review. *J Am Coll Card* 2007; 49: 2303-11.
13. Bush N, Nelson-Piercy C, Spark P, Kurinczuk jj, Brocklehurst P, Knight M. Myocardial infarction in pregnancy and postpartum in the UK. *Eur j Cardiovasc Prev Rehabil* 2011. Advance Access published on November 29, 2011, Vol 20 no.12-20. doi: 10.1177/1741826711432117.
14. Gelson E, Gatzoulis MA Steer P, Johnson MR. Heart disease- why is maternal mortality is increasing? *BJOG* 2009; 116: 609-11.
15. Lewis GE (ed) Saving mothers' lives: reviewing maternal deaths to make motherhood safer. 2006-2008. The Eighth Report of the Confidential Enquiries into Maternal Deaths in the United Kingdom. *BJOG* 2011; 118(Suppl.1): 1-203.

ORIGINAL ARTICLE

AUTHORS:

1. Sreelatha S.
2. Bharathi A.
3. Priyanka Jogi

PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of Obstetrics & Gynaecology, ESIC Medical College & PGIMSR, Bangalore, Karnataka.
2. Assistant Professor, Department of Obstetrics & Gynaecology, ESIC Medical College & PGIMSR, Bangalore, Karnataka.
3. Junior Resident, Department of Obstetrics & Gynaecology, ESIC Medical College & PGIMSR, Bangalore, Karnataka.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Bharathi Anjanappa,
Assistant Professor,
Department of Obstetrics & Gynaecology,
ESIC Medical College & PGIMSR,
Rajajinagar, Bangalore – 560010,
Karnataka.
E-mail: bharathiworld@rediffmail.com

Date of Submission: 19/07/2014.
Date of Peer Review: 22/07/2014.
Date of Acceptance: 23/07/2014.
Date of Publishing: 31/07/2014.