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Fetomaternal Outcome in Cases of Pregnancy with Heart Diseases In A Tertiary Care Hospital-A Prospective Study.

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Abstract:
Introduction: *In India 1-3% of all pregnancies are complicated by maternal cardiac disease, an association that is responsible for about 15% of all maternal deaths. The incidence has remained stable for many years since the significant decrease in the occurrence of rheumatic heart disease in the last 40 years has been compensated by a significant increase of pregnancy with congenital heart disease.*
Methods: *This study was conducted in the Department of Obstetrics and Gynaecology, Patliputra Medical College, Dhanbad, Jharkhand from January 2017 to December 2017. 70 women with heart disease which were previously established or diagnosed during pregnancy were enrolled in the study.*
Results: *In 70 women pregnancies was complicated by heart disease in the study. The prevalence of heart disease amongst all pregnancies found in hospital was 4.3%. The principal cause of cardiac lesion was Rheumatic heart disease (RHD) (53.6%) while congenital heart disease was seen in 12.3%. Among the women who had RHD, mitral stenosis seen in 21 (26.3%) was most common lesion and Multiple cardiac lesions 21 (26.4%) women. Among the women with congenital cardiac disease, mitral valve prolapse was most common constituting 5 (5%) cases. Cardiomyopathy was the most common constituting 7 (7.3%). Heart failure developed in 10 (11.1%) whose NYHA class changed from class I/II to class III/IV. Majority of the women delivered by caesarean section 33 (36.7%) while (35.6%) had a normal vaginal delivery with spontaneous onset of labour. 7% had assisted instrumental vaginal delivered. 9% women had first trimester abortion. There were 4 maternal deaths. 85.6% live births were observed in these women. No baby had congenital heart disease. 72.8% babies born weighed more than 2kg.*
Conclusions: *This study concluded that pre-pregnancy diagnosis, counselling, appropriate referral, antenatal supervision and delivery at equipped centre improve the pregnancy with heart disease outcome for both mother and baby.*
Keywords: *Rheumatic heart disease, Cardiomyopathy, Mitral valve stenosis, Pregnancy,*

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I. Introduction:

Cardiac disorders are observed in approximately 1% of pregnancies; they account for morbidity and mortality rates [1,6] and pose challenges in management [7,8]. Diseases of the heart are broadly divided into congenital and acquired. Common congenital heart diseases include atrial septal defect and ventricular septal defect. The acquired group comprises rheumatic heart disease, cardiomyopathies and ischaemic heart disease [11,13]. In India and other developing countries, rheumatic heart disease is most common [10,14]. Pregnancy is normally characterized by increased stroke volume and cardiac output [1,11,17]. Extreme fluctuations in cardiac output occur at the time of labour and after delivery.

Maternal heart disease can lead to cardiac decomposition and death [16], particular in the second stage of labour. In addition, comorbidities such as pre-eclampsia, anaemia, pre-term labour, and foetal growth restriction are commonly seen in patients with heart disease, which must be therefore carefully evaluated and managed [17].

II. Materials And Methods:

This study was conducted in the Department of Obstetrics and Gynecology at Patliputra Medical College, Dhanbad, Jharkhand. 70 women with heart disease which were previously established or diagnosed during pregnancy were enrolled in this study.

Inclusion Criteria: Pregnant women with known or newly diagnosed for the first time in pregnancy admitted to obstetrics ward from January 2017 to January 2018 were included in the study.

Exclusion Criteria: All pregnant women with congenital or acquired cardiac lesions or delivered patients with heart disease who were referred to our hospital but those with associated medical disorders like Diabetes mellitus, pulmonary disease, renal disease or any other endocrinological disease were excluded from this study.
Mother with coronary cardiac disease.
Mothers with medical disorder other than cardiac disease.

A structured detailed proforma was used to gather the essential information regarding heart disease in pregnancy. Baseline 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 was duly recorded.

III. Results:

A total of 70 women where pregnancy was complicated by heart disease were included in the study. The prevalence of heart disease amongst all pregnancies found in the hospital was 4.3%, The age of patients ranged from 20-35 years with maximum number of patients in 20-30 years age group (74.5%). In this study, most of the patients were primigravida (60%). The Rheumatic Heart disease was the principal cause of heart disease amongst all pregnancies. Congenital heart disease was present in 13.3% patients.

Table 1: Age distribution of patients.

Age (years)	Number	Percentage
<20	3	4.28
20-25	32	45.71
26-30	21	30
31-35	7	10
>35	7	10
Total	70	100

Among the women who had Rheumatic heart disease, Mitral Valve stenosis being the most common lesion and was seen in 21 (23.3%). Multiple cardiac lesions were present in 22 (24.4%) women. Among the women with congenital cardiac disease, mitral valve prolapse was most common lesion constituting 5 (5%) cases.

Table 2: Distribution of cardiac lesion.

Cardiac lesions		No.	%
Rheumatic heart disease	Single valve lesion	19	27.14
	Multiple valve lesions	17	24.28
Congenital		12	17.14
Prior cardiac surgery		7	10
Miscellaneous		15	21.42
Total		70	100

Cardiomyopathy was the most common cardiac disease in the miscellaneous group, constituting 7 (7.8%). Among the studied pregnant women with heart disease, heart failure developed in 10 (11.1%) cases whose NYHA class changed from class 1/11 to class 111/1V. Majority of women delivered by cesarean section 33 (36.7%). Thirty-two (35.6%) subjects had a normal vaginal delivery with spontaneous onset of labour. Seven (7%) had assisted instrumental vaginal delivery.

Table 3: Maternal outcome of pregnancy in term of mode of delivery.

Pregnancy		No.	%
LSCS		24	34.288
Vaginal delivery	Spontaneous labour	26	37.144
	Induced labour	3	4.28
Instrumental delivery	Ventouse	4	5.71
	Outlet forceps	1	1.42
Termination of pregnancy	Inevitable abortion	5	7.14
	Medical termination of pregnancy	3	4.28
Maternal death		4	5.71

Out of 90 patients, there were four (4.4%) maternal deaths. Nine (9%) women had first trimester abortions. Among all the babies born alive none had congenital heart disease. There were about 77 (85.6%) live births observed in these women. Among all babies born 56 (72.8%) weighted more than 2 Kgs.

Table 4: Perinatal outcome in maternal heart disease pregnancy.

Perinatal outcome		No.	%
Birth	Still	10	14.28
	Live	60	85.72
Apgar score	<9/10	10	24.7
	≥9/10	50	75.3
NICU admission	Yes	12	28.6
	No	50	71.4
Neonatal death	Yes	2	2.85
	No	60	85.71

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Statistical Analysis: All characteristics were summarized descriptively. For continuous variables, the summary statistics of N, mean, standard deviation (SD) were used. For categorical data, the number and percentage were used in the data summaries. Chi-square (χ^2)/Fisher exact test was employed to determine the significance of differences between groups for categorical data. The difference of the means of analysis variables was tested with the unpaired t-test. If the p-value was < 0.05, then the results will be considered to be significant. Data were analyzed using SPSS software v.23.0.

IV. Discussion

This study was conducted in the postgraduate Department of Obstetrics and Gynaecology, Lalla Ded hospital affiliated with GMC, Srinagar in total of 90 women 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 4.3% was found which was same as that of the study conducted by Puri S et al.[20] In the current study, majority of the patients were in the age group of 20-30 years (74.5%) and most of them were either primigravidae or primipara (60%). This was comparable to Vidyadharet al were 70% were either primigravida or primipara.[21]

In the current study RHD (56.6%) was the principal cardiac lesion and mitral stenosis was the most common cardiac lesion (23.3%). These results were in consensus with Vidyadharet al, Mazhar SB et al, Devabhaktula et al, and N Bhatla et al.[1,21-23] 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. Twenty-two (24.4%) patients had multiple cardiac lesions. Echocardiography was helpful for early and accurate evaluation of cardiac lesions.

In this study, 35.6% women had spontaneous vaginal delivery as compared to 41% (Nilajkumar et al); 24% (Alireza et al); 76.2% (Mazhar et al); 73.5% (Hameed et al); 62.8% (Vidyadhar et al) in other studies.[21,22,24-26] Cesarean Section (36.7%) was done only for obstetrical indications. Nilajkumar et al reported caesarean in 20.6%; 9.5% by Mazhar et al; Alireza et al (76%).[22,24,25] In the present study,55 of women underwent labour induction as compared to 15% in study conducted by Hameed et al and Pratibha D et al.[23,26] In the evaluation of pregnancy with cardiac disease 7.8% of patients had inevitable abortions and 2.2% had to undergone MTP which was comparable to Suman et al and Mazhar et al studies.[20,22] Mortality in pregnant females with cardiac disease is mainly due to cardiac failure and pulmonary oedema. Four females in our study died mainly due to cardiac failure, sepsis and shock which was comparable to Hameed et al, Mazhar et al, Alireza et al, Verena et al, Akhtar et al and Sheetal CN et al[29].[22,25-28]

In the present study, 21 (27.8%) babies were born who weighed less than 2 kg 56 babies. Seventy-seven live births were observed in these women and 13 still births which was comparable to Mazharet al.[22]

V. Conclusion

Cardiac disease during pregnancy needs to be given utmost priority. Our study is limited by the smaller sample size of the study, had no control group and it was limited to one medical centre only. However results of this study can be generalised to the population, as it was representative of the population studied and results were comparable to other studies.

Today most women with heart disease can be brought safely through pregnancy without major risks for themselves or the unborn child. Good antenatal care combined with obstetric, neonatologist, cardiologist and anesthesiologists i.e. a multi-disciplinary combined approach can bring about successful outcome in pregnancies complicated by heart disease. Early detection and treatment of cardiac complications, anemia, and pregnancy induced hypertension will contribute towards favourable maternal and neonatal outcome. Use of prophylactic antibiotics, anti-failure treatment during labor may bring down the incidence of infective endocarditis and cardiac failure during antenatal as well as puerperal period. Use of prophylactic anticoagulants in high risk patients may prevent development of embolism in pregnant patients with heart disease. The good results of this study can be attributed to the multidisciplinary approach of obstetrician, neonatologist, cardiologist and anaesthesiologist. Adverse fetomaternal outcome was related to poor functional class of NYHA.

References

[1]. Cunningham FG, Leveno KJ, Bloom SL, Spong CY, Dashe JS, Hoffman BL, et al. Williams obstetrics, 24th Edition, Appleton and lange; 2014:973.
[2]. Grewal M, Biswas MK, Perloff D. Cardiac, hematologic, palmonary, renal and urinary tract disorder in pregnancy. In Decherney AH, Nathan (Eds). Current Obstetrics and Gynaecologic Diagnosis and Treatment, 9th Edition; 1991:387-427.
[3]. Asghar F, Kokab H, Evaluation and outcome of pregnancy complicated by heart disease. J Pak Med Assoc. 2005;19:1-2.
[4]. Bangal VB, Singh RK, Shinde KK. Clinical study of heart disease complicating pregnancy. IOSR Journal of Pharmacy. 2012;2(4):25-8.
[5]. Guleria R, Vashist K, Dhall GI, Grover A, Wahi PL, Pregnancy with heart disease. Experience at
[6]. PGIMER, Chandigarh. J of Physicians of India. 1990;38:902-6.
[7]. Pratibha D, Kiranmai D, Rani VU, Vani NG. Pregnancy outcome in chronic rheumatic heart disease . J Obstet Gynecol India. 2009;59(1):41-6.
[8]. Avila WS, Rossi EG, Ramires JA, Grinberg M, Bortolotto MR, Zugaib M. Pregnancy in patients with heart disease: experience with 1,000 cases. Clin Cardiol. 2003;26(3):135-42.
[9]. 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.
[10]. Arias F. Practical guide to high risk pregnancy and delivery , 2nd edition; 1992:572.
[11]. Subramaniam AL, Subramaniam AC, Geetha N. Pregnancy and labor in cardiac patients. Obst Gynae India. 1980;30:479-82.
[12]. Elkayam U, Gleicher N. Cardiac problems in pregnancy: diagnosis and management of maternal and fetal heart disease 3rd Ed; 1998.
[13]. Creasy PK, Resnik R. Maternal and fetal medicine. Principles and practice, 2nd ed. Philadelphia; 2013.
[14]. Braunwald. Heart disease: A Textbook of Cardiovascular Medicine, 6th ed., Copyright ©, WB Saunders Company; 2001:1846-1850.
[15]. Naderi S, Raymond R. Pregnancy and heart disease: Cleveland clinic practice based pharmacology, published; 2014.
[16]. Cantwell R, Brock TC, Cooper G, Dawson A, Drife J, Garrod D, et al. Centre for maternal and child enquiries. Saving mothers' lives: reviewing maternal deaths to make motherhood safer: 2006-08. The eighth report on confidential enquiries into Maternal Deaths in the United Kingdom. BJOG. 2011;118(Suppl 1):1-203.
[17]. Regitz-Zagrosek V, Blomstrom Lundqvist C, Borghi C, Cifkova R, Ferreira R, Foidart JM, et al. ESC guidelines on the management of cardiovascular diseases during pregnancy. European Heart Journal. 2011;32:3147-97.

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