

Feto-Maternal Outcome of Pregnancy in Females Presenting With Cardiac Disease

Naima Khan¹, Zameen Sultan², Ifra Shafique³

¹WMO at BHU Mazharabad, Punjab, Pakistan

²Incharge Health officer BHU 411JB Toba tek Singh, Punjab, Pakistan

³WMO, BHU 147 EB Arifwala, Punjab, Pakistan

Article History:

Submitted: 11.05.2021

Accepted: 18.05.2021

Published: 25.05.2021

ABSTRACT

Introduction: The presence of maternal heart disease has an adverse effect on pregnancy outcomes.

Objectives: To assess the feto-maternal outcome of pregnancy in females presenting with cardiac disease.

Study Design: This descriptive case series was conducted in department of obstetrics and gynecology, unit-I, Jinnah hospital, Lahore.

Subjects and Methods: A total of 160 patients were included in this study, after delivery, birth weight was noted and lbw was labeled if weight was low. If baby died within 48 hours, then neonatal mortality labeled (as per operational definition). Females were followed-up in OPD and called for postpartum examination. If female died within 7 days, then maternal mortality labeled.

Results: Mean \pm SD age of patients was 26.5 \pm 4.5 years. Majority of women were between 26-40 years of age. Mean \pm SD gestational age was 36.6 \pm 2.2 weeks, mean duration of disease was 6.4 \pm 3.8 years, and

mean BMI was 35.5 \pm 8.5 kg/m². There were 80 (50 %) nulliparous and 80 (50 %) multiparous. Majority of the patients were obese. Most common severity of disease was moderate 82 (51.2 %) and least severity of cardiac disease was mild 30 (18.8 %). Preterm deliveries were 57 (35.6 %). low birth weight babies were 84 (52.5 %). Neonatal mortality was 24 (15 %) and maternal mortality was 6 (3.8 %). stratification for age, gestational age, parity, obesity, severity of cardiac disease and duration of diseases was also carried out.

Conclusion: Heart disease in pregnancy is associated with significant morbidity, it should be carefully managed in a tertiary care hospital to obtain optimum maternal and foetal outcome.

Keywords: Cardiac disease in pregnancy, Mitral stenosis, Valvular heart disease in pregnancy

***Correspondence:**

Naima Khan, WMO at BHU Mazharabad, Punjab, Pakistan, E-mail: naimakhan8804@gmail.com

INTRODUCTION

Heart disease in pregnancy is a high risk condition and has a major impact on pregnancy. Associated obstetric complications along with lack of knowledge and ignorance regarding the pathology lead to unfavorable obstetric outcome. Maternal and perinatal morbidity and mortality can be reduced with proper antenatal, intrapartum and postnatal care in conjunction with cardiologist and neonatologist (Ashwini M *et al.*, 2014).

Pregnancy in women with cardiac disease is associated with marked increase in maternal morbidity and mortality (Madaqli R *et al.*, 2010) (Liu H *et al.*, 2010). Pregnancy is associated with an increased incidence of preterm deliveries and Lower Birth Weight (LBW) (Ahmed N *et al.*, 2015). The importance of pre-pregnancy diagnosis, counseling and contraception are essential to safely manage the planned pregnancies in cardiac patients (Sahni G *et al.*, 2012) (William T *et al.*, 2013).

In local literature, it has been found that among females with cardiac disease. LBW ranged from 27.7 % to 45.6 % (Wasim T *et al.*, 2008), preterm delivery from 14-21.8 %, but 4.8 % preterm delivery has also been reported. Which is very low incidence (Yasmeen N *et al.*, 2011). Neonatal mortality ranged from 4.8 %-10 % and maternal mortality also ranged from 1.9-7.1 % cases (Mazhar SB *et al.*, 2005).

The rationale of this study is to study feto-maternal outcome of pregnancy in females presenting with cardiac disease. Controversial results have been observed in previous studies. Some has showed that the frequency of complications are high in pregnant females with cardiac disease while other reported low. So we conducted this study to review the magnitude of the

extent of the problem in local population. So that in future. We can plan better management and preventive methods for better fetal surveillance and better pregnancy outcome (Hogberg U *et al.*, 1994).

Objectives

To assess the feto-maternal outcome of pregnancy in females presenting with cardiac disease in a tertiary care hospital.

MATERIALS AND METHODS

This Descriptive case series was conducted in Department of Obstetrics and Gynaecology, Unit-I, Jinnah Hospital, Lahore.

Sample size

Sample size of 160 cases was calculated with 95% confidence interval, 4 % margin of error and taking expected percentage of maternal mortality i.e. 7.1 % (Wasim T *et al.*, 2008) in pregnant females presenting with cardiac disease.

Sampling technique

Non-probability, consecutive sampling

Inclusion criteria

➤ Females of age 18-40 years presenting at gestational age >32 weeks on USG with cardiac problem (as per operational definition)

➤ Singleton pregnancy on USG

Exclusion criteria

➤ Short interpregnancy interval (less than 6 months)

➤ Females with PIH (BP >140/90 mmHg). Pre-eclampsia

(BP>140/90, protein urea +1 on dipstick method) and/or eclampsia (pre-eclampsia with convulsions), gestational diabetes (BSR>186 mg/dl), anemia (Hb<10 mg/dl), asthma (on medical record)

Data collection procedure

160 females fulfilling selection criteria were enrolled in study from OPD of Department of Obstetrics and Gynaecology, Jinnah hospital, Lahore. Informed consent was obtained. Demographic information (name, age, gestational age, parity and severity of cardiac disease) was also obtained. Then females were followed-up in OPD till delivery and advised to present in labour room in case of labour pains. If delivery occurred before 37 weeks, preterm birth was labeled.

After delivery birth weight was noted and LBW labeled if weight was low. If baby died within 48 hours, then neonatal mortality labeled (as per operational definition). Females were followed-up in OPD and called for postpartum examination. If female died within 7 days, then maternal mortality labeled. These patients managed by multidisciplinary approach as per hospital protocol. All this information collected through a pre-designed proforma (attached).

Data analysis procedure

Data were analyzed by SPSS version 20. Quantitative variables like age, disease duration, BMI and gestational age calculated as mean and standard deviation. Qualitative variables like preterm delivery, obesity, LBW. Neonatal and maternal mortality calculated as frequency and percentage. Data was stratified for age, parity (nulliparous/multiparous), obesity, duration of disease and severity of cardiac disease. Chi square was applied to compare the outcome in stratified groups taking p-value 0.05 as significant.

RESULTS

A total of 160 patients were included in the study during the study period of six months from 03-10-2016 to 02-04-2017.

Mean ± SD age of patients was 26.5 ± 4.5 years. Majority of women were between 26-40 years of age. Mean ± SD gestational age was 36.6±2.2 weeks, mean duration of disease was 6.4 ± 3.8 years, mean BMI was 35.5±8.5 kg/m2. There were 80 (50 %) nulliparous and 80 (50 %) multiparous. Majority of the patients were obese. Most common severity of disease was moderate 82 (51.2 %) and least severity of cardiac disease was mild 30 (18.8 %). Preterm deliveries were 57 (35.6 %). Low birth weight babies were 84 (52.5 %). Neonatal mortality was 24 (15 %) and maternal mortality was 6 (3.8 %). Stratification for age, gestational age, parity and obesity, severity of cardiac disease and duration of diseases was also carried out (Tables 1-6).

Table 1: Distribution of patients by age

Age (Year)	Number	Percentage
18-25	71	44.4
26-40	89	55.6
Total	160	100.0
Mean±SD	26.5 ± 4.5	

Table 2: Distribution of patients by gestational age (week)

Gestational age	Number	Percentage
<37	58	36.3
≥ 37	102	63.7
Total	160	100.0
Mean±SD	36.6 ± 2.2	

Table 3: Distribution of patients by BMI

BMI (kg/m ²)	Number	Percentage
≤ 25	14	8.8
>25	146	91.3
Total	160	100.0
Mean ± SD	35.5 ± 8.5	

Table 4: Distribution of patients by parity

Parity	Number	Percentage
Nulliparous	80	50.0
Multiparous	80	50.0
Total	160	100.0

Table 5: Distribution of patients by low birth weight

Low birth weight	Number	Percentage
Yes	84	52.5
No	76	47.5
Total	160	100.0

Table 6: Stratification for parity with regard to preterm delivery

Parity	Preterm delivery	Total	P value	Total
	Yes	No		
Nulliparous	31	49	80	0.409
Multiparous	26	54	80	
Total	57	103	160	

DISCUSSION

Despite advent and wide use of antibiotics, post rheumatic valvular heart disease remains the most common cardiac problem universally, especially so in the developing countries. Similarly, mitral stenosis was the commonest lesion in this study, as reported from most regions of the world (Yasmeen N *et al.*, 2011). Mitral stenosis is the most common, potentially lethal heart condition in pregnancy. Maternal risks are increased with severe mitral stenosis (mitral area<1cm). The presence of aortic valve stenosis simultaneously is associated with increased maternal morbidity and adverse fetal outcomes (Mazhar SB *et al.*, 2005).

It is therefore advisable to correct the lesion before pregnancy. Those patients with a treated cardiac valvular lesion with a prosthetic valve pose special problems at the time of delivery. They are at increased risk to develop complications like thrombosis, endocarditis, structure failure and fetal embryopathy with oral anticoagulation (Hogberg U *et al.*, 1994).

Cardiomyopathy is a rare and potentially lethal cardiac complication of late pregnancy and early postpartum period, exact etiology still remains unknown (Malhotra A *et al.*, 2009). It is characterized by development of congestive cardiac failure and left ventricular systolic dysfunction (van der Putten D *et al.*, 2009) (Cuneo BF *et al.*, 2009) (Dresner M *et al.*, 2009) (Haththotuwa HR *et al.*, 2009).

In the developed countries successful paediatric surgery of congenital heart diseases, and low incidence of rheumatic disease, has resulted in increased number of such patients reaching into reproductive age group. In present study, maternal mortality was very low (3.8%) as compared to two studies carried out by Dobbenga *et al.*, (2006), Lewis and Drife (2004) (Ford AA *et al.*, 2008) (Soma-Pillay P *et al.*, 2008) (Lyndon A *et al.*, 2006).

CONCLUSION

It is concluded that heart disease in pregnancy is associated with significant morbidity, it should be carefully managed in a tertiary care hospital to obtain optimum maternal and foetal outcome.

REFERENCES

1. Ashwini M, Devi G. Maternal and fetal outcome in cardiac disease complicating pregnancy at a tertiary centre in a rural area. *Int J Biomed Res.* 2014; 5: 200-203.
2. Madazli R, Sal V, Cift T, Guralp O, Goymen A. Pregnancy outcomes in women with heart disease. *Arch Gynecol Obstet.* 2010; 281: 29-34.
3. Liu H, Xu JW, Zhao XD, Ye TY, Lin JH, Lin QD. Pregnancy outcomes in women with heart disease. *Chinese Med J.* 2010; 123: 2324-2330.
4. Ahmed N, Kausar H, Ali L. Rakhshinda. Fetomaternal outcome of pregnancy with Mitral stenosis. *Pak J Med Sci.* 2015; 31: 643-647.
5. Sahni G, Elkayam U. Cardiovascular Disease in Pregnancy. *Cardiology clin.* 2012; 30: 11-12.
6. William T, Roberts, Adamson D. Cardiovascular disease in pregnancy. *Obst Gynaecol Reproduct Med.* 2013; 23: 195-201.
7. Wasim T, Amer W, Majrroh A, Siddiq S. Feto-maternal outcome of pregnancy with cardiac disease. *J Pak Med Assoc.* 2008; 58: 175-178.
8. Yasmeen N, Aleem M, Iqbal N. Feto-Maternal Outcome in Patients with Cardiac Disease in Pregnancy. *Pak J Med Health Sci.* 2011; 5: 748-755.
9. Mazhar SB, Gul-e-Irum. Feto maternal outcome in pregnancy with cardiac disease. *J Coll Physicians Surg Pak.* 2005; 15: 476-480.
10. Hogberg U, Innala E, Sandstrom A. Maternal Mortality in Sweden, 1980-1988. *Obstet Gynaecol.* 1994; 84: 240-244.
11. Malhotra A, Menahem S, Shekleton P, Gillam L. Medical and ethical considerations in twin pregnancies discordant for serious cardiac disease. *J Perinatol.* 2009; 29: 662-667.
12. Van Der Putten D, Brennan M. Midwifery basics: caring for women with medical conditions (5): cardiac disease in pregnancy. *Pract Midwife.* 2009; 12(3): 32, 34-7.
13. Cuneo BF, Strasburger JF, Niksch A, Ovadia M, Wakai RT. An expanded phenotype of maternal SSA/SSB antibody-associated fetal cardiac disease. *J Matern Fetal Neonatal Med.* 2009; 22: 233-238.
14. Dresner M, Pinder A. Anaesthesia for caesarean section in women with complex cardiac disease: 34 cases using the Braun Spino-cath spinal catheter. *Int J Obstet Anesth.* 2009; 18: 131-136.
15. Haththotuwa HR, Attygalle D, Jayatileka AC, Karunaratna V, Thorne SA. Maternal mortality due to cardiac disease in Sri Lanka. *Int J Gynaecol Obstet* 2009; 104: 194-198.
16. Ford AA, Wylie BJ, Waksmonski CA, Simpson LL. Maternal congenital cardiac disease: outcomes of pregnancy in a single tertiary care center. *Obstet Gynecol.* 2008; 112: 828-833.
17. Soma-Pillay P, MacDonald AP, Mathivha TM, Bakker JL, Mackintosh MO. Cardiac disease in pregnancy: a 4-year audit at Pretoria Academic Hospital. *S Afr Med J.* 2008; 98: 553-556.
18. Lyndon A, Arafeh JM, Bakewell-Sachs S. Cardiac disease during pregnancy. *J Perinat Neonatal Nurs.* 2006; 20: 277-278.