

MATERNAL AND FETAL OUTCOME IN PREGNANT AND PARTURIENT WOMEN WITH CARDIAC DISEASE

Sadia Arif*, Ayesha Arif**, Samina Baqar*

*Combined Military Hospital Kharian, **Combined Military Hospital Lahore, *Military Hospital Rawalpindi

ABSTRACT

Objective: To study the maternal and fetal outcome in pregnant and parturient women with cardiac disease admitted in Armed Forces Institute of Cardiology Rawalpindi.

Type of Study: Cross sectional descriptive study.

Place and Duration: Armed Forces Institute of Cardiology Rawalpindi Jan 2008 to June 2008.

Patients and Methods: All pregnant patients beyond 28 weeks gestation with cardiac disease diagnosed before pregnancy or during the index pregnancy admitted for delivery or with cardiac complications were included in the study. All neonates less than 2.5 kg were taken as low birth weight and deliveries between 28 and 37 weeks were considered preterm. Cardiac patients with pregnancy less than 28 weeks were excluded from the study.

Results: Maternal mortality was 5% with 31% mortality in NYHA Class III and IV. Perinatal mortality was 9% and low birth weight babies were 17%. Perinatal mortality was 0% in NYHA Class I and II and 60% in NYHA class III and IV. There was no maternal mortality in booked patients. All patients who expired were unbooked.

Conclusion: Functional cardiac status is the most important factor affecting maternal and perinatal outcome. Antenatal booking status of the patient is the next important factor.

Keywords: Pregnancy, Cardiac diseases, Maternal, Fetal outcome, NYHA classification.

INTRODUCTION

Cardiac disease is one of the causes of maternal deaths in our country¹. In U.K it is the leading cause of maternal mortality⁶. Cardiac disease complicates 0.5-4% of all pregnancies. Rheumatic heart disease is three times more prevalent than congenital heart disease in developing countries² where as this ratio of 3:1 is reversed in developed countries as women with congenital heart disease in these countries undergo corrective and palliative cardiac surgery in childhood and survive into adulthood⁷.

In Pakistan heart disease is diagnosed in women for the first time in pregnancy¹ when symptoms are triggered by increased demands on the heart and the cardiac disease is unmasked. If the diagnosis of heart disease has been established in young women before marriage it is not disclosed because of social reasons and maternal mortality has resulted

due to conception by women in whom pregnancy would have been contraindicated e.g. severe MS.

NYHA functional class² is the most important factor affecting maternal mortality. It is 0.4% for NYHA class I and II and 6.8% for class III and IV. Rheumatic heart disease is the commonest cardiac disease in pregnancy in Pakistan. Mitral stenosis⁸ is associated with a maternal mortality³ of 10% and upto 50% in NYHA class III and IV. Atrial fibrillation⁴ increases the risk of mortality by 5-10.

PATIENTS AND METHODS

One hundred pregnant women with cardiac disease who delivered in the gynae/obs unit attached with Armed Forces Institute of Cardiology Rawalpindi from January 2008 to June 2008 were included in the study.

The patients information including age, obstetric history, type of cardiac disease and NYHA class was endorsed in a specially designed proforma. Maternal and fetal outcome was documented for each patient. The mode of delivery was noted and neonatal outcome in terms of birthweight and gestational age was

Correspondence: Maj Sadia Arif, Classified Gynecologist CMH Kharian Cantt

Email: drsadiaarif@hotmail.com

Received: 02 July 2010; Accepted: 20 July 2012

recorded. All pregnant patients beyond 28 weeks gestation with cardiac disease diagnosed before pregnancy or during the index pregnancy admitted for delivery or with cardiac complications were included in the study. All neonates less than 2.5kg were taken as low birth weight and deliveries between 28 and 37 weeks were considered preterm².

Cardiac patients with pregnancy less than 28 weeks were excluded from the study.

All women were given Ampicillin and Genticyc I/V for prophylaxis against infective endocarditis, vancomycin was reserved for those allergic to ampicillin. Ventouse and out let forceps were used to shorten second stage of labour where required. Frusemide was given 20mg I/V after delivery to prevent pulmonary edema. Syntocinon² 10 units I/V was given at the time of delivery to prevent postpartum hemorrhage. Ergometrine² was not used, other methods like controlled cord traction while delivering the placenta, gentle uterine massage and immediate suturing of episiotomy were used to minimize blood loss. Misoprostol 800ug was placed in rectum in cases at risk of PPH and in patients in whom blood loss appeared to be more than normal.

RESULTS

Hundred women were included in the study. Data was analyzed using SPSS version 15. Descriptive statistics were used to describe the data. Eighty four percent women were in NYHA class I and II. Sixteen percent women were in NYHA class III and IV.

Eighty three percent women had their cardiac disease diagnosed prior to pregnancy and in the remaining 17% it was diagnosed during the index pregnancy.

PTMC (percutaneous trans mitral commissurotomy) was done in 12% women prior to pregnancy ranging from 2-10 years.

Sixty six percent women had normal vaginal delivery, 4% had forceps delivery and 2% had vacuum delivery.

30% women underwent caesarean section, indications for c/section included previous scar in 15 patients, fetal distress in 5 patients, failed

Table-1: Frequency distribution of maternal age group and obstetric status

Maternal age group	n (%)
Less than 25 yrs	21%
26 - 30 yrs	45%
31 - 35 yrs	26%
36 - 40 yrs	8%
Maternal obstetric status	
Primigravidae	34%
Multigravidae	66%

Table-2: Frequency distribution of maternal cardiac disease characteristics (n=100)

1	Valvular lesions	71
i	Mitral Stenosis	47
ii	Mitral Regurgitation	9
iii	Aortic Regurgitation	1
iv	Tricuspid Regurgitation	2
v	Mitral Valve Disease	11
	MS Predominant	7
	MR Predominant	4
2	Congenital heart diseases	
i	Atrial Septal Defect	14
ii	Ventricular Septal Defect	8
iii	Patent Ductus Arteriosus	1
iv	Left Bundle Branch Block	1
3	Hypertrophic obstructive cardiomyopathy	1
4	Dilated cardiomyopathy	2
5	Supraventricular tachycardia	2

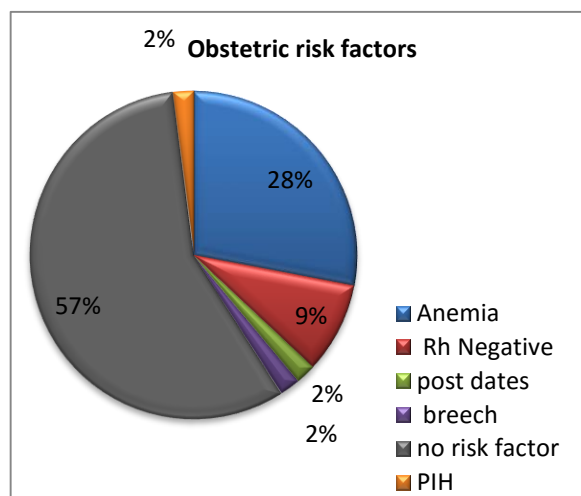


Fig: Distribution of obstetric risk factors

progress of labour in 7 patients, and breech presentation in one patient.

Twelve percent women had induction of labour. Indications for induction included PIH, post dates pregnancy, Pre-labour rupture of membranes. Methods used for induction included prostaglandin E2 pessary, intracervical foley catheter and syntocinon infusion.

Perinatal Outcome

There were 9% perinatal losses including 5% intrauterine deaths and 4% neonatal deaths. 30% deliveries were preterm and 17% resulted in low birth-weight babies.

The incidence of preterm labour was 30% in NYHA class I and II and 70% in class III and IV.

17% neonates were low birth weight.

Maternal Outcome

Cardiac complications were seen in 8% patients. 7% patients had congestive cardiac failure and one had atrial fibrillation. 14% patients were on anticoagulant warfarin and had been switched over to Heparin 5000i.u S/C B.D at 36 weeks of gestation.

Obstetric Risk factors

- PIH was seen in 2% patients.
- 28% had anemia.
- 9% patients were Rh negative.
- There were 2% post-date pregnancies .
- 2% patients had breech presentation.

Maternal Mortality

There were 5% maternal deaths. All the patients were unbooked. One patient had dilated cardiomyopathy with poor left ventricular function. The rest of the 4 patients had severe mitral stenosis. Three patients were in NYHA class IV and two patients were in class III.

DISCUSSION

NYHA class directly affects maternal and fetal outcome^{2,3}.

Sixteen percent women in our study were in NYHA class III and IV as compared to 28% in the study by Devabhaktuni Pratibha² and 22.3% in the series by Sawhney³.

The ratio of rheumatic heart disease to congenital heart disease was 2.8% in our study. In the study by Asghar.F.Kaukab H¹ it was 3:1. In the study by Devabhaktuni it was 1.88:1¹.

In our study 2% patients had cardiomyopathy as compared to 4% by Asghar F Kokab H¹.

71% patients were in age group of 26-35 years in our study, and all the 50 patients were in 26-35 year age group in the study by Asghar F.Kokab.H¹.

In our study 34% women were primigravidas and 66% were multigravidas, 52% were multigravidas in the study by Asghar .F.Kokab. H¹ and 60% were multigravidas in the study by Devabhaktuni Pratibha².

In our study 72% women had vaginal delivery and c/section was done in 28% women. All c/sections were performed under general anaesthesia in AFIC whereas graded epidural anaesthesia is used in other centres⁶. Severe MS and AS are managed under general anaesthesia⁶. In the study by Asghar F. Kokab .H.91% patients had vaginal delivery¹. In the study by Devabhaktuni Pratibha² c/section rate was 26.5% and they were done only for obstetric indications.

Congestive cardiac failure was seen in 11% as compared to 14.5% in study by Devabhaktuni Pratibha² and 20% in the study by Asghar¹ and 38% in the series by Hameed⁴.

The low birth weight rate was 17% in our study as compared to 42% in the study by Asghar F Kokab H.¹ ,37.4% in the study by Devabhaktuni Pratibha et al².

Preterm labour was seen in 11% women in our study, 4% in the study by Asghar F Kokab.H¹, and 9.3% in the study by Devabhaktuni Pratibha¹. Neonatal death rate was 4% in our study and 22% in the study by Asghar F Kokab.H¹.

Perinatal mortality rate was 2% in NYHA class I and II and 19 % in class III and IV. The perinatal mortality rate in Devabhaktuni Pratibha² study was 3.4% in NYHA class I and II and 14.28% in class III and IV.

Maternal mortality rate was 5% in our study it was 2% in the study by Asghar F Kokab H¹, 0.9% in the study by Devabhaktuni Pratibha² and 2% maternal mortality was reported by Sawhney³.

CONCLUSION

A multidisciplinary approach is required for care of pregnant and parturient patients with cardiac disease including obstetricians, cardiologists and anaesthetists.

The functional cardiac status is the main factor affecting maternal and perinatal outcome. Early detection, evaluation and combined care of cardiac disease in pregnancy can result in better outcomes for mother and fetus. A detailed history and cardiac examination of all women at their booking visit in the antenatal clinic is mandatory. It serves the purpose of screening young women for cardiac disease. There was no maternal mortality in booked patients who delivered in AFIC and perinatal mortality was nil. All patients who expired were unbooked. Women with severe cardiac

disease contraindicating pregnancy need extensive counseling involving their families with detailed explanation of high maternal mortality.

REFERENCES

1. Asghar F, Kokab H. Evaluation and outcome of pregnancy complicated by heart disease. *J Pak Med Assoc* 2005; 55:416-9.
2. Pratibha D, Kiranmai D, Rani UV, Vani GN. Pregnancy outcome in chronic rheumatic heart disease. *J Obstet Gynecol India* 2009; 59:41-46.
3. Sawhney H, Aggarwal N, Suri V et al. Maternal and perinatal outcome in rheumatic heart disease. *Int J Gynaecol Obstet* 2003; 80: 9-14.
4. Hameed A, Karaalp IS, Tummala PP et al. The effect of valvular heart disease on maternal and fetal outcome of pregnancy. *J Am Coll Cardiol* 2001; 37: 893-9.
5. Prasad AK, Ventura HO. Valvular heart disease and pregnancy. A high index of suspicion is important to reduce risks. *Postgrad Med* 2001; 110: 69-72, 75-6, 82-9, passim.
6. Joubert IA, Dyer RA. Anaesthesia for the pregnant patient with acquired valvular disease. *Update in anaesthesia* 2005; 19:1-2.
7. Oron G, Hirsch R, Ben-Haroush A et al. Pregnancy outcome in women with heart disease undergoing induction of labour. *BJOG* 2004; 111: 669-75.
8. Mishra S, Narang R, Sharma M et al. Percutaneous transseptal mitral commissurotomy in pregnant women with critical mitral stenosis. *Indian Heart J* 2001; 53: 192-6.
9. Algotar K, Nalawade A, Dhanawat DG. Balloon mitral valvuloplasty: maternal and fetal outcome. *Bombay Hosp J* 2005.

.....