Original Research Paper

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CLINICAL STUDY OF MATERNAL AND FETAL OUTCOME IN HEART DISEASE COMPLICATING PREGNANCY

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ABSTRACT **Objectives:** To find out prevalence, spectrum of disorder, maternal and perinatal outcome in heart disease complicating pregnancy. **Materials and Methods:** This is a prospective ,hospital based study conducted in King George Hospital,Vishakapatnam from April 2021 to April 2022 .Sample size is 65. **Results:** Incidence of heart disease complicating pregnancy is 0.97%. RHD constituted for 62% of cases, CHD for 30% ,peripartum cardiomyopathy for 4.4% of the cases. RHD: CHD was 2:1. In patients with RHD, MS was seen in 54% of cases either alone or in combination with other valvular lesions. In CHD group, most common lesion was ASD 39%.Cases of NYHA class I/II were more compared to NYHA III/IV cases at the time of registration. Hypothyroidism was the most common associated medical disorder. A total of 7.8% of patients developed cardiac complications, CHF(5.2%) ,Pulmonary oedema(2.5%). 33% of babies required NICU admission for prematurity (14%) and growth restriction (19%). Live birth rate was higher in cases with NYHA class I/II than in those with NYHA class III/IV (98% Vs 92%). IUGR Preterm birth were higher in patients with functional class III/IV than in those with class I/ II. Maternal mortality rate was 1.4%. **Conclusion:** Preconceptional counselling, risk assessment, prior surgical correction, regular antenatal checkups, early recognition and treatment of complications during pregnancy are crucial in reducing the maternal and perinatal morbidity and mortality.

KEYWORDS : Chronic Rheumatic Heart Disease(CRHD), Congestive heart failure(CHF), IUGR(Intrauterine growth restriction)

INTRODUCTION

- Prevalence of heart disease in pregnancy varies from 0.3 to 3.5 %
- Many significant circulatory changes accompany pregnancy in women with preexisting cardiac disease, these alterations in haemodynamics can be dangerous
- The pregnant state offers early diagnosis of cardiac lesion and about 50% of women with heart disease were unaware of their lesion when they entered antenatal OPD.
- Rheumatic heart disease has been most important cardiac lesion in relation to pregnancy even today.
- The clinical pattern of the congenital heart disease has also changed , due to introduction of cardiac surgery.
- Pregnancy remains prohibitive in conditions like pulmonary vascular disease or associated with severe morbidity in condition like Mitral valve stenosis . Conditions like Mitral valve prolapse , have a benign course during gestation.
- The effect of heart disease on outcome of the pregnancy can be greatly modified by good medical management of complications and cardiac surgery when indicated.

Aims & Objectives

Aim of this study is to find the prevalence , spectrum of disorder, maternal and perinatal outcome in heart disease complicating pregnancy at a tertiary care centre.

METHODOLOGY

- This is a prospective study, conducted at King George Hospital, Andhra Medical College,Vishakhapatnam from April 2021 to April 2022 .
- Sample size 65.

Inclusion criteria

- Booked and un-booked cases.
- Diagnosed either before or during pregnancy.
- Delivered at or >28 weeks.

Exclusion criteria

- Severe anaemia .
- First trimester termination of pregnancy
- At first antenatal visit, detailed history regarding age ,parity, nature of underlying cardiac lesio, NYHA class, H/o Rheumatic fever , H/o cardiac interventions are noted.

Investigations

- Complete blood picture , complete urine examination and cultures, USG, Doppler studies [when indicated].ECG & Echo cardiography were done to know the type and severity of cardiac disease.

Follow up

After making definitive diagnosis, women were divided into three broad groups RHD, CHD & Other cardiovascular diseases. Further they are subdivided to surgically corrected and uncorrected and followed up through multidisciplinary approach .

Evaluation of maternal and foetal outcome

- All the patients were evaluated for obstetrical events like preterm delivery, precipitate labour, ante partum haemorrhage, mode of delivery[spontaneous vaginal/forceps /caesarean section], maternal morbidity and mortality.
- Fetal events like prematurity , IUGR , Intra uterine fetal death , neonatal death .

Effects of pregnancy on heart disease like CHF, pulmonary oedema, pulmonary hypertension, arrhythmias, infective endocarditis were also studied.

RESULTS

- A total of 65 pregnant women were studied and analysed , total number of deliveries at that period is 6685.Hence the incidence is 0.97%.
- In the present study , CRHD contributes to 62% [40 cases], followed by congenital heart disease with 30%
- [19cases],peripartum cardiomyopathy 4.4%,cardiac arrhythmias 1.2% [1 case].
- Ratio of CRHD :CHD is 2:1

4.4%CRHD
32% CHD
62% PPCM

- In present study , age distribution varied from 20 to 40 yrs ,with majority women [56 %] between 20 to 25 yrs
- 68.5% were un-booked cases.
- 47%were primigravida and 41.4 % were second gravida .

AGE	cases	%
<20 yrs	4	6
20-25yrs	37	56
26-30yrs	19	29
31-35yrs	4	6
36-40yrs	1	1.5

Booking status	Cases	%
booked	20	31.4
unbooked	45	68.5
Parity	cases	%
primi	30	47.1
second	26	41.4
multi	7	11.4

B.wt	cases	%
1.5 -1.9 kg	10	16
2 -2.4 kg	12	19

2.5-2.9kg	29	45
>3 kg	12	18

perinatal outcome	cases	%
preterm	9	14
IUGR	12	19
Alive	63	97
IUD	2	3
NICU	20	33

Obstetric outcome	NYHA Class I & II	%	NYHA Class III & IV	%
Live births	49	98	23	92
IUGR	7	14	5	20
Preterm	5	10	4	16
IUD	1	2	2	8
Maternal mortality	-		1	1.4

- In CRHD , Mitral stenosis is predominant valvular lesion .
- 6 cases were severe and 4 were mild. 54 % cases had mitral stenosis , both isolated and associated with other valvular lesions.
- In CHD , ASD was predominant lesion -39%
- IUGR was major obstetric risk factor associated with cardiac disease , upto 19% cases .
- Incidence of hypothyroidism is 9.3% followed by anaemia 8 % among the associated medical disorders.
- 7.8% of the cases had complications , 5.2% cases had congestive cardiac failure and 2.5 % had pulmonary oedema.
- Vaginal delivery was conducted in 45 pts among them forceps were applied in 20 and ventouse was applied in 11 and rest had cesarean section.
- Epidural was given in 11 cases.
- 33% of babies were LBW , live birth rate was 97 %,IUGR was seen in 19 % cases and prematurity in 14 % of cases.

DISCUSSION

- Heart disease is an important cause of maternal mortality in India
- Present study shows rheumatic heart disease is two times more common than congenital heart disease which shows inadequate treatment of streptococcal infection in childhood.
- With increasing gravidity, the rate of complications such as cardiomyopathy and arrythmia associated with heart disease increases due to indirect association with increasing age, duration of heart disease, progression of disease process.
- Cardiac failure is a major complication in pregnancy and is often associated with maternal death.
- Pre-term birth and low birth weight babies are known as the major neonatal complications in women with heart disease in pregnancy. Perinatal outcome was more dependent on severity of symptoms during pregnancy rather than the duration and type of heart disease.
- Incidence of IUGR is more in cyanotic heart disease compared with acyanotic ones .Lower rate of IUGR in this study might be due to more acyanotic cases and better NYHA class.

CONCLUSION

- In conclusion, pre-conceptional counselling , accurate risk assessment, regular antenatal checkups and prevention, early recognition and aggressive treatment of complications during pregnancy are crucial in reducing the morbidity.
- Surgical correction of cardiac lesion before pregnancy is associated with better pregnancy outcome.
- Functional cardiac status is the most important factor affecting maternal and foetal outcome.
- A multidisciplinary approach involving skilled obstetricians, cardiologists, anaesthetists and neonatologist in a tertiary care centre with well equipped feto-maternal unit is required.