

A Study on Congenital Heart Disease in Pregnancy

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Abstract: Congenital Heart Disease is one of the most important causes of maternal and neonatal mortality and morbidity. A prospective study on Fetomaternal outcome in pregnant mothers with Congenital Heart Disease was conducted in tertiary care centre, Govt. Rajaji Hospital Madurai, Over a period of 6 months from march 2020 to August 2020. ASD is found to be the commonest Congenital Cardiac lesion both in mother and baby. Incidence of new born Congenital Heart Disease born to mother with Congenital Heart Disease found to be 6%.

Keywords: Congenital heart disease, Atrial septal defect, Echocardiography

1. Introduction

A Study on Congenital Heart Disease in pregnancy about type of cardiac lesion, age of mother, parity, gestational age at delivery, mode of delivery, type of neonatal cardiac lesion, birth weight of babies and neonatal morbidity and mortality was conducted in tertiary care centre at Madurai medical college, Govt. Rajajihospital, Madurai.

Aim

To Study the fetomaternal outcome in pregnant mothers with congenital heart disease.

2. Methodology

A prospective study was conducted in the department of obstetrics and gynecology, Government. Rajaji Medical College and Hospitals, Madurai. The prevalence of congenital heart disease was 3.05% The incidence of congenital heart disease among the 1866 antenatal cases studies between March 2020 and August 2020 was 1.8% Out of 57 cases of congenital heart disease, 35 were ASD (61.4%), 9(15.7%) were VSD, 2 (3.5%) were PDA, 1 was TOF (1.7%), 1 case of Wolff Parkinson white syndrome (1.7%), 1 case of right atrial mass (1.7%). About 6(10.05%) of the newborn born to these mothers with congenital heart disease were found to have CHD in the screening echo done on 3rd postnatal day. 5 of these newborns had ASD and 1 had hypoplastic left ventricle. The risk of congenital heart disease in newborn is higher in ASD and VSD than other congenital heart disease. Baseline data of the patients including age, parity, Gestational age, cardiac lesion, clinical findings, ECG, maternal screening echo cardiography and fetal echocardiography at 20-22 weeks, mode of delivery were recorded. Outcome in terms of birthweight, preterm birth, congenital heart disease in baby, neonatal deaths, early pregnancy loss were studied. Screening echocardiography was performed in the newborn on 3rd postnatal day to identify any cardiac lesion in the baby.

3. Results

The prevalence of congenital heart disease was found to be 3.05%. The age of the patients studied ranged from 19 to 35 years with maximum number of patients in the age group of 20-30 years.

Cardiac lesion as follows:

Cardiac lesion	No of the patients	%
ASD	35	61.40%
VSD	9	15.70%
PDA	2	3.50%
TOF	1	1.70%
WPWS	1	1.70%
RIGHT ATRIAL MASS	1	1.70%

The age distribution of the patients is as follows

Age	No of the patients	%
<20 years	5	8.70%
20-30 years	45	78.94%
>30 years	7	12.28%

Parity distribution as follows

Parity	No of the patients	%
Primi	31	54.38%
Multi	26	45.61%

Gestational Age of delivery as follows

Gestational Age	No of the patients	%
<34 weeks	1	1.75%
34-37 weeks	23	40.35%
>37 weeks	33	57.89%

Mode of Delivery

Cardiac lesion	Outlet forceps delivery	Caesarean section
ASD	15	20
VSD	4	5
PDA	1	1
TOF	-	1
WPW	1	-
Congenital PS	-	1
Ebstein anomaly	-	2
Bicuspid Aortic valve	1	2
Mitral valve Prolapse	1	1
Right atrial mass	-	1
Total	23	34

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Outlet forceps delivery: 23- (40.35%)

Caesarean section: 34 – (59.6%)

Distribution of birth weight of babies

Birth weight	No of babies	%
<2 kg	3	5.26%
2-2.5 kg	21	36.80%
2.5-3 kg	31	54.38%
>3 kg	2	3.50%

6 out of 37 babies studied had congenital heart disease accounting for 10.5% of these 5 had ASD and 1 had Hypoplastic left ventricle.

Distribution of heart disease in babies is as follows

Type of lesion	No of babies
ASD	5
Hypoplastic left ventricle	1

Type of lesion in mother	No of babies with heart disease
ASD	2
VSD	4

	No of babies	%
IUGR	18	31.57%

	No of babies	%
Neonatal death (hypoplastic left heart syndrome)	1	1.75%

4. Discussion

Heart disease is one of the most important causes of maternal and neonatal morbidity and mortality in the antepartum and postpartum period. Cardiac disease in pregnancy is broadly divided into congenital and acquired heart disease. The commonest type of heart disease in developing countries is rheumatic heart disease. The incidence of congenital heart disease in India is 8 per 1000 live births (1). The number of women with congenital heart disease at as risk of pregnancy is growing because of the advances achieved in pediatric cardiology and cardiac surgery over the past five decades. At least 85% of the affected newborns now reach adulthood (2). Pregnancy results in significant hemodynamic changes that may not be well tolerated in women with congenital heart disease. In addition to the risks of pregnancy itself, there is an increased incidence of congenital heart disease in children of women with congenital abnormality ranging from 3% overall to 50% in women with autosomal dominant inheritance such as Marfan's syndrome (3).

Fetal echocardiography

The fetal echocardiography between 20-22 weeks has been used as a diagnostic tool to identify congenital heart disease and has been found to have sensitivities ranging from 60 to 100% (6). Various methods of antenatal ultrasonograms now available. The four chamber view is the most basic assessment. The sensitivity of four chamber view is 50% with specificity being 100% (7). Extended Fetal echocardiography allows two dimensional scanning of the heart and associated structures supplemented by spectral and colour flow Doppler and M mode scanning to assess the

blood flow within the heart (8). Congenital heart disease are responsible for 40% of perinatal deaths (9). Of which more than 20% deaths occur in the first month of life. Early knowledge of these lesions allows further monitoring, testing for known associated non-cardiac structural and chromosomal anomalies and for the parental counseling about pregnancy management including termination (10).

5. Conclusion

Congenital heart disease in pregnant woman is one of the important cause for both maternal and neonatal morbidity and mortality. Hence, antenatal screening echocardiogram is mandatory in all pregnant women to ascertain the cardiac status. There is increased risk of mothers with CHD to give birth to a child with CHD. Hence, all women with Congenital heart disease should be subjected to detailed fetal echocardiogram between 20th to 22nd week of pregnancy, performed by specialist and also postnatal echocardiogram in newborn is mandatory to improve perinatal outcome.

References

- [1] Anith Sexena, congenital heart disease in pregnancy : a status report (Indian J pediatr 2005 ; 72(7):595-598)
- [2] Kaemmerer H, Hess J: Adult patients with congenital heart abnormalities-present and future. Dtsch med Wochenschr 2005;130 :97-101
- [3] K short : pregnancy in women with congenital heart disease : the importance of evaluation and counselling; Heart 2005;91:713-714:doi:10.1136/hrt2004.047886
- [4] Dtsch Arztebl Int 2008; 347-54 DOI:10.32381 atztebl 2008.0347 Congenital heart disease in pregnancy
- [5] Nora JJ : from geatational studies to a multileneal genetic environmental interation, J Am coll, Cardiol 1994;71;3-7
- [6] Buske E Grobee DE, Frohnmulder : ME, Wlamiroff JW, Hess. J Aspects of etiology of congenital heart disease. Eur heart J 1995:16584-587.
- [7] Shi C, et al Zonghuaze Chan, Value of four chamber view of fetal echo for prenatal diagnosis of congenital heart disease 2002 jul;37(7);385-7
- [8] BJOG:Accuracy of fetal echocardiography in the routine detection of congenital heart disease among unselected and low risk population : a systemic review January 2005, voll 12. PP24-30
- [9] Ahu-HarbM, HeyE, Wren C. Death in infancy from nrecognised congenital heart disease. Arch Dishild 1994;71:3-7
- [10] Wladimiroff JW, Stewart PA, Vosters RPL. Fetal cardiac structure and function as studied by ultrasound, a review. ClinCardiol 1984:3-13