



## THE PATTERN OF CONGENITAL HEART DISEASES IN NEWBORNS BORN IN A TERTIARY CARE CENTRE.

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### ABSTRACT

**INTRODUCTION:** Congenital heart diseases(CHD) occurs in approximately 0.8% of live births. Out of 7% of the neonatal deaths due to congenital malformations, 25% constitutes cardiovascular anomalies. The purpose of this study is to know the pattern of heart diseases in newborns born in a tertiary care centre.

**METHODS:** A retrospective hospital-based study carried out in ASRAM hospital, Eluru from January 2019 to December 2019 to see pattern of Congenital heart diseases.

**RESULTS:** The total number of births is 1132 during this one year of which 28 newborns had congenital heart diseases. There is an equal distribution between both males and females. Among 28 neonates 35.7% are preterm and 64.3% were term. Out of 28 newborns with congenital heart diseases 92.8% were acyanotic heart diseases, 7.2% were cyanotic heart diseases. Among the term neonate, most common was acyanotic heart disease (88.9%) out of which Atrial Septal Defects(ASD) (27.7%) was most common, cyanotic heart diseases were 11.1% i.e., Tetralogy Of Fallots (TOF). Multiple heart defects were present in 22.2%. Among the preterm all were acyanotic diseases out of which ASD (80%) was most common.

**CONCLUSION:** Early recognition of CHD is important for appropriate management and decision making regarding referral. Neonates presenting with multiple anomalies should be screened for any underlying structural heart disease.

**KEYWORDS :** Congenital heart diseases ,Acyanotic heart diseases , early intervention, ASD.

### INTRODUCTION:

Congenital heart disease is defined as “a gross structural abnormality of the heart or intra-thoracic great vessels that is actually or potentially of functional significance” proposed by Mitchell et al<sup>(1)</sup>. Various studies reported incidence of CHDs in India from 0.8 to 4.2 per 1000 live births<sup>2-7</sup>.

The prevalence of CHD is not uniform in our country as various studies have reported it ranging from 1.3 to 50.89 per 1000 live births<sup>8,9</sup>. Nearly 1/3rd of the congenital heart diseases (CHD) are critical requiring interventions in the first year of life<sup>10</sup>. Out of 7% of the neonatal deaths due to congenital malformations, 25% constitute cardiovascular<sup>11</sup>. Clinical presentation of CHD depends on type of defect and severity of defect.

The incidence of Congenital heart disease in India is increasing, probably due to increase of birth rate, earlier and more accurate diagnostic modalities, more awareness amongst parents due to social media. Despite advanced diagnostic facilities and improved medical care, CHD is considered one of the leading causes of neonatal mortality.

Thus, recognition of congenital heart disease in the newborn is important as this group of abnormalities constitutes a significant proportion of congenital malformation that present in neonatal life, and their early detection is important for appropriate management, and follow up for decision making regarding referral.

### AIMS AND OBJECTIVES:

The objective of this study is to know the pattern of congenital heart diseases in newborns born in a tertiary care centre.

### INCLUSION CRITERIA:

Neonates born in in ALLURI SITARAMARAJU ACADEMY OF MEDICAL SCIENCES hospital during the study period with documented congenital heart diseases were included in the study.

### EXCLUSION CRITERIA:

- All stillborns were excluded.
- Gestational age <22wks & birth weight <400gm.

### METHODS:

- Retrospective hospital based observational study.
- **Duration:** January 2019 to December 2019.
- Place of study: ALLURI SITARAMARAJU ACADEMY OF MEDICAL SCIENCES
- Institutional ethical committee clearance was taken
- All the newborns were looked for congenital anomalies soon after birth and everyday during routine ward rounds. Relevant information along with antenatal, natal and postnatal history including maternal age, gestational age, sex, birth weight, birth order and consanguinity was documented. Diagnosis of congenital heart diseases was based on clinical evaluation and 2d- ECHO screening of suspected newborn babies was done.
- Privacy & strict confidentiality was maintained, while collecting the data. The data collected was not be disclosed to anyone during the study.

### STATISTICAL ANALYSIS:

- The data collected entered in Microsoft Excel and analyzed using SPSS 23 version.
- The data analyzed was expressed using chi-square test, T-test, bar diagrams, pie diagrams & graphs.

### RESULTS:

The present study was conducted in ALLURI SITARAMARAJU ACADEMY OF MEDICAL SCIENCES during the time period of JANUARY 2019 to DECEMBER 2019. The total number of births is 1132 during this one year of which 28 newborns had congenital heart diseases.

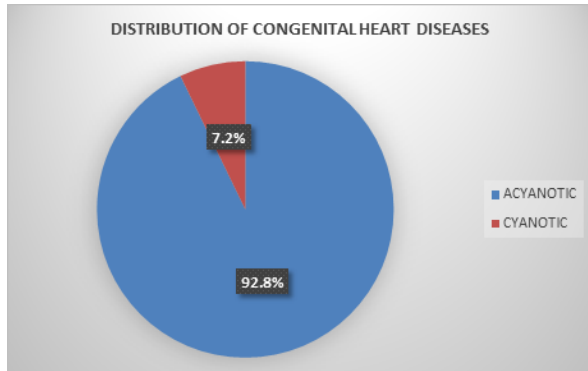
Most of the women belonged to age group of 21 – 29yrs (75%) and 28.6% were associated with consanguineous marriage.

53.6% were multiparous and 17.8% were associated with bad obstetric history.

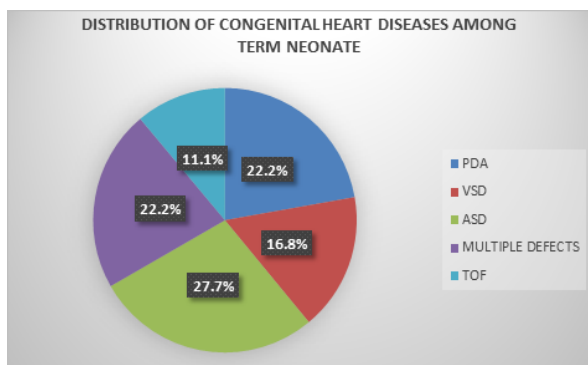
When we considered multiple risk factors like chronic drug usage, maternal history of chronic diseases, family history of similar complaints we found that most of them had the history of chronic disease 32.2%.

Most of the newborns born by LSCS (78.5%) and with weight between 2 to 3 kg (39.3%). Non-cardiac anomalies like cleft lip, cleft palate, syndromes were associated in 78.6% these cases.

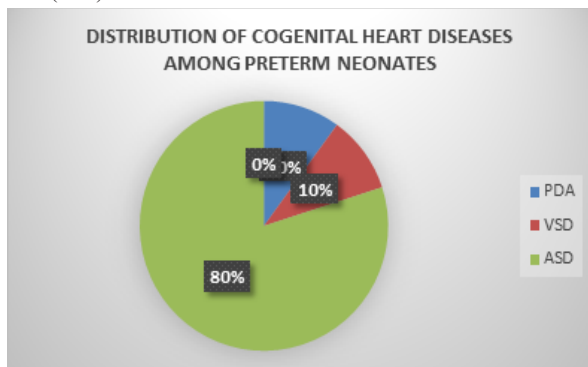
There is equal distribution between both males and females. Among 28 neonates 35.7% are preterm and 64.3% were term. Out of 28 newborns with congenital heart diseases 92.8% were acyanotic heart diseases, 7.2% were cyanotic heart diseases



Among the term neonate, most common was acyanotic heart disease (88.9%) out of which ASD (27.7%) was most common, cyanotic heart diseases were 11.1% i.e. TOF. Multiple heart defects were present in 22.2%.



Among the preterm all were acyanotic diseases out of which ASD (80%) was most common.



## DISCUSSION:

The present study was conducted on 28 newborns born in ASRAM hospital with documented congenital heart diseases. In this study we considered risk factors like consanguinity, maternal age, bad obstetric history, chronic maternal diseases, gestational age, gender of the baby, weight of the baby. The neonates are grossly divided into acyanotic and cyanotic heart diseases.

In this study we found that most common maternal age group is 21 - 29 yrs (75%), where as in Peng- Fei sun et al<sup>12</sup> found that it was maternal age >35 yrs. Maternal age does not play major role in our study.

Consanguinity played a major role in CHD in Ravilala VK et al<sup>13</sup> which differed from our study where consanguinity does not play any role.

NVD was more common in QuaziM et al<sup>14</sup>, but in our study LSCS was

more common. Terms were more commonly involved in our study which differed from Khalil et al<sup>5</sup> where preterms were more commonly involved.

Non-cardiac anomalies like cleft lip, cleft palate and syndromes were associated in 21.4% in our study which was similar to that of QuaziM et al<sup>14</sup>, Ravilala VK et al<sup>13</sup>, Bhushan Deo<sup>15</sup> studies. Most common syndrome was Down syndrome which was similar to QuaziM et al<sup>14</sup>. Male to female ratio is 1:1 in our study. But, Sah GS et al<sup>16</sup>, QuaziM et al<sup>14</sup> showed male to female ratio of 1.5:1

Acyanotic heart disease (92.8%) is the most common CHD in our study which was similar with QuaziM et al<sup>14</sup>, Ravilala VK et al<sup>13</sup>, Bhushandeo et al<sup>15</sup>, Sah GS et al<sup>16</sup>, Zahid SB et al<sup>17</sup>.

In our study ASD was more common which was similar to that of Peng-Fei sun et al<sup>12</sup> study, where as QuaziM et al<sup>14</sup>, Ravileela VK et al<sup>13</sup>, Hoffman et al<sup>1</sup> studies found that VSD was more common.

Among cyanotic heart diseases TOF (11.1%) was most common among the term neonates which was similar to QuaziM et al<sup>14</sup>, Bhushan Deo et al<sup>15</sup>, Naik s et al<sup>18</sup>. In Ravilala et al<sup>13</sup> TGA was most common among the cyanotic heart diseases.

Most of the studies did not compare between preterm and term. In our study most common congenital heart disease among preterms is ASD whereas, in Khalil et al<sup>5</sup> PDA was most common among preterms.

As it is referral center high risk cases are being referred to our hospital, hence results can not be applied to general population. The limitation of our study is the small sample size.

## CONCLUSION:

- Neonates presenting with multiple anomalies should be screened for any underlying structural heart disease.
- Neonates with CHD have a unique presentation and they carry poor outcome unless diagnosed early and managed appropriately.
- Hence early recognition and prompt treatment helps in decreasing the neonatal deaths.

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