

Congenital Heart Disease in the Pediatric Population in Eastern India: A Descriptive Study

This cross-sectional study assessed distribution and pattern of echocardiography confirmed congenital heart disease, among 593 pediatric patients in outpatient departments of a tertiary care hospital in eastern India. Commonest defects were ventricular septal defect (43, 40.7%), atrial septal defect (241, 31.7%), and tetralogy of Fallot (125, 21%).

Keywords: Birth defects, Congenital heart failure, Cyanosis.

Congenital heart disease (CHD), a common developmental defect among pediatric population, contributes to significant morbidity and mortality [1]. Epidemiological studies show CHD prevalence varying from 4/1000 to 50/1000 live-births [2,3]. This variation is attributed to genetic, environmental and socioeconomic differences. In India, prevalence of CHD ranges from 0.8-26.4/1000 children [4]. However, most studies have been conducted in northern and western parts of India among school children (5–15 years age), and under-represent children from eastern India and those <5 years age [4]. This study aimed to assess proportion and pattern of CHD among pediatric patients attending outpatient department (OPD) of a tertiary care hospital in eastern India.

This cross-sectional study was conducted at Neonatology, Pediatric Medicine, Pediatric Cardiology and Cardiovascular Surgery OPDs of Seth Sukhlal Karnani Memorial (SSKM) Hospital, Kolkata, India, between December, 2016 to June, 2018. Ethical approval was obtained from the Institutional Ethics Committee of SSKM Hospital. Assent and informed consent were obtained from the participants' and participant's guardian wherever applicable, prior to study enrollment. All patients (age 0-14 year) attending relevant OPDs were included. The diagnoses were confirmed by echocardiography, and classified according to Q20-Q28 of tenth revision of International Classification of Diseases (ICD) [5], and International Pediatric and Congenital Cardiac Code (IPCCC) [6]. Major CHDs included atrial septal defect (ASD), ventricular septal defect (VSD), patent ductus arteriosus (PDA), pulmonary stenosis (PS) and tetralogy of Fallot (TOF). ASD <4.0 mm diameter was not considered as a cardiac defect. If a patient had more than one lesion, the

defect that required treatment or caused hemodynamic effect was considered the main malformation. Standardized, validated questionnaires administered by trained research assistants were used for collecting data. Age-at-diagnosis was considered 0 day if CHD was reported from maternity ward, or age-at-first hospitalization for CHD, or age-at-cardiac procedure.

Proportion of CHD was calculated as number of pediatric patients affected with CHD out of total attendance of pediatric OPDs in hospital. Chi square tests were used to test difference in proportions among categorical variables. Analysis was done using PC-SAS program (V9.2, SAS institute, Cary, NC, USA).

Of 41,236 patients attending pediatric OPDs during study period, 593 (1.4%) had CHD; 51.9% were males. The mean (SD) age was 4 (3.2) years; 225 (37.9%) patients more than one CHD. The commonest types were: VSD (241, 40.7%), ASD (188, 31.7%) and TOF (125, 21%). Others included PDA (44, 7.5%), PS (43, 7.3%) and double outlet right ventricle (DORV) (27, 4.5%). Isolated VSD accounted for 23.2%, both ASD and VSD 7.3%, and VSD combined with other cardiac defects (PS, PDA, DORV) 6.5% of all CHD cases. There was no significant difference in age-group (≤ 5 years and > 5 years) ($P=0.9$) and sex distribution ($P=0.3$) of CHD. Proportion of CHD did not differ significantly among birth-weight groups (≤ 2.5 kg and > 2.5 kg) ($P=0.5$), gestational age (full-term vs. premature) ($P=0.09$), maternal age (<18, 18-29 and > 29 years) ($P=0.9$) and maternal weight (normal vs. overweight) ($P=0.5$). CHD proportion also did not significantly differ with presence/absence of history of spontaneous abortion, maternal co-morbidities, infection and smoking.

The high proportion of VSD in our study is in agreement with reported range of 21-53% from other studies [4,7,8]. ASD was the second most common CHD (31.7%), and was higher compared to reported figures of 10-23% in Indian studies [4,7]. TOF was the most common cyanotic heart disease and its proportion (21%) was higher compared to reported figures of 4.6-18.3% [9]. Though our study did not document detailed history on socioeconomic and nutritional background of mothers, our study population comprised mostly middle- and low socioeconomic class, and our findings seem consistent with studies that report premature birth, low socioeconomic status and poor nutrition as important factors associated with CHDs among Asian population [10].

Most studies state that 50% of all cases of CHD are detected by 1 month, 75% by 3 months and 100% by 3-4 years age [9]. This variation at CHD detection occurs due to hemodynamic alterations occurring after birth. Our study showed that about 5% of cases were detected by 1 month, majority (83.1%) by 5 years and diagnosis was delayed beyond 10 years in 11.7% of cases. The delay in diagnosis of CHD can be explained by lack of awareness, and less health facilities and pediatric cardiac care programs in India.

The nature of survey only provided us with an estimation of proportion and pattern of CHD and no conclusions can be drawn on prevalence and causality of CHD from this study. Nevertheless, this is the first survey from eastern India providing an up-to-date data on CHD, and filling some gaps in knowledge of CHD from this geographical region.

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SHARMILA CHATTERJEE^{1*}, SANTANU DUTTA², SUMANTA GHOSH², SANCHITA DAS² AND NITAL BHATTACHARY³

From¹Biomedical Genomics Center, and²Department of Cardiothoracic Vascular Surgery, IPGIMER and SSKM Hospitals; and³Saha Institute of Nuclear Physics, Salt Lake; Kolkata, West Bengal, India.

**sharmilahotmail@hotmail.com*

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Antibiotic Prescription Quality in Group A β -hemolytic Streptococcal Pharyngitis

Antibiotic prescriptions in 227 patients with acute group A β -hemolytic streptococcal pharyngitis in the emergency department were studied. Antibiotic prescription was inappropriate in 42% of the cases, especially due to errors in the prescription of amoxicillin. Probably the use of low-spectrum penicillins would improve this percentage.

Keywords: *Amoxicillin, Prescription error, Treatment.*

Excessive use of antibiotics is one of the main factors associated with antibiotic resistance [1]. The

administration of inappropriate antibiotics represents an unnecessary healthcare expense and likelihood of unwanted side effects [1-3]. Incorrect prescription of antibiotics in terms of dosage and administration is another factor related with antibiotic resistance guidelines. Spain is one of the European countries with the highest rates of antimicrobial prescription and antibiotic resistance [2]. Presently, rational use of antibiotic must be a priority and quality assessment and control are essential to detect deficient areas that are ripe for improvement [4,5]. In a review [6] of acute group A β -hemolytic streptococcal (GABHS) pharyngitis treated in our pediatric emergency department (ED) in 2008, a prescription rate of penicillin V <5% and errors in the posology of the prescribed antibiotic were evidenced [6].