

Congenital Heart Diseases in Down Syndrome Children at Albaha Area, Saudi Arabia

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and to measure the pulmonary artery pressure. Early diagnosis and management is important to improve quality of life in DS patients [14,15].

Objective

The aim of the study is to determine the prevalence and the most common types of CHDs in Down syndrome patients at Albaha area, Saudi Arabia, and to compare it with other previously reported studies

AR	1	<1%	1			
PS	1	<1%			1	
EBETEIN	1	<1%			1	
CHD with PHN	18/125	14.4%				
Palliative surgery as 1st step	3/125					
Operated as univentricle	5/125					
Pericardial effusion	2/125					

DS: Down Syndrome; CHD: Congenital Heart Disease; KFH: King Fahad Hospital; NICU: Neonates Intensive Care Unit; PFO: Patent Foramen Ovale; PDA: Patent Ductus Arteriosus; VSD: Ventricular Septal Defect; PS: Pulmonic Stenosis; PA: Pulmonary Atresia; AVSD: Atrioventricular Septal Defect; PHN: Pulmonary Hypertension; TOF: Tetralogy Of Fallot; ASD: Atrial Septal Defect; PFO: Patent Foramen Ovale; TR: Tricuspid Atresia; MR: Mitral Regurgitation; LV: Left Ventricle; RV: Right Ventricle; PA: Pulmonary Atresia.

Table 2 Frequency and distribution of congenital heart diseases in down syndrome patients no. 125 pts.

Electrocardiogram and echocardiogram were done for all patients. Chromosome analysis was done in 57 pts (38%), where 56 (98.2%) pts were diagnosed as trisomy 21, one case was diagnosed as translocation Down syndrome. As seen in Table 2, AVSD was the most frequent lesion 61 (48.8%), followed by PDA 23 (18.4%), VSD 16 (12.8%), PFO 11 (8.8%) then ASD 3 (2.4%), TOF 2 (1.6%), TR 4 (2.4%), MR 2 (1.6%), and PS, AR, Epstein anomaly less than 1% for each.

The most common combination of cardiac lesions in Down syndrome cases included in this study was PDA with PFO. Only 5 patients had been seen with large PDA who needed transfer for PDA ligation. Female patients were more U ~~XXXX~~ Div as Div as eDiv asg

Discussion

Probably related with the high altitude of Albaha, in our study we found that 83.3% of the Down patients had associated CHD, which was similar to other areas in Saudi Arabia, 83.3% in Jeddah [10], 61.3% in Aseer [12], 49% in Riyadh [9], and 40.9% in Almadina [9]. But It was higher than the occurrence reported in the international studies from 19 to 43% [17], 78% in Turkey [18], 60% in Oman [19], 43.5% in Germany [7], 40% in Egypt [1], and between 30-65% in Netherlands [6]. AVSD was found as the highest prevalence 61 (48.8%) pts, VSD 16 (12.8%) pts, and ASD 14 (11.2%) pts. in third (Table 2). Our results were going with the international studies in which AVSD was varies from 40-80% [17] and VSD 33.3% [20]. As seen in Table 3 in Saudi Arabia, like our study, the AVSD was the most common CHD type diagnosed in Almadina [11], VSD the most common was diagnosed in Aseer [12] and Riyadh [9], while PDA was the most common in Jeddah [10].

We found that patients with DS and CHD have a higher risk of developing PHN 14.4% compared with DS patients without CHD 2%.

Prevalence of PHN in neonates with DS was 1.2 to 5.2%, while the prevalence in the general population is 0.1% [7]. Patients with DS develop PHN even in the absence of CHDs. Upper airway obstruction is a common associated problem with DS and may cause obstructive sleep apnea and can develop pulmonary hypertension [13]. In our