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Congenital Heart Anomalies in Babies with Imperforate Anus and its Mortality

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Abstract: Imperforate Anus (IA) is an abnormality of the anus and rectum that is present at birth. The infant is born without a normal rectal opening. Anorectal malformations occur in one in 5,000 live births. Anorectal and urogenital malformations are rarely fatal, although some associated anomalies (cardiac, renal) can be life threatening. The aim of this study is to determine congenital heart disease in babies with Imperforate Anus. Prospective study was carried out between February 1999 and January 2006 and it consisted of 93 consecutive children with IA. The study included children presenting with IA at the birth time. Echocardiography was done in all patients. Associated anomalies were studied and congenital heart anomalies were evaluated by Echocardiography. The study was undertaken in 93 patients with IA, 48(51.6%) boys and 44 girls. About 47(50.5%) of them had congenital heart anomalies. Echocardiography was performed in 87(93.5) of patients and were abnormal in 48.3% of studied cases. Mortality rate of studied patients with IA was 12.9%. Mean age of male patients was 1.02±0.146 day and Mean age of female patients was 1.02±1.51 day (p = 0.936). Mean age of died patients was 1.17±0.389 day and Mean age of improved patients was 1.02±1.51 day (p = 0.100). Atrial Septal Defect (ASD) was the most common associated cardiac anomaly. Associated anomalies such as congenital heart disease are present in a high percentage of patients with Anorectal malformations. Many of these associated anomalies are serious and long term prognosis of child with anorectal malformations more often depend on extent of these associated anomalies than on anorectal malformations itself. Systemic and radiological examination in neonatal period to detect associated anomalies at the earliest phase and should be managed immediately to prevent future morbidity and mortality.

Key words: Imperforate Anus, congenital heart anomalies, morbidity and mortality, cardio anomoly, echacardiography

INTRODUCTION

Imperforate Anus is an abnormality of the anus and rectum that is present at birth. The infant is born without a normal rectal opening (Javid *et al*., 1998; Glasier *et al*., 1987). Anorectal malformations occur in one in 5,000 live births. There is no known cause. Anorectal malformations occur slightly more commonly in males (Javid *et al*., 1998; Glasier *et al*., 1987; Joseph *et al*., 1985; Spouge and Baird, 1986; Shaul and Harrison, 1997; Hassink *et al*., 1996; Lerone *et al*., 1997; Smith, 1987). About one half of the children with an imperforate anus have other associated medical problems (Javid *et al*., 1998; Glasier *et al*., 1987). Anorectal malformations include a wide spectrum of defects in the development of the lowest portion of the intestinal and urogenital tracts. Many children with these malformations are said to have an imperforate anus because they have no opening where the anus should be (Javid *et al*., 1998; Glasier *et al*., 1987; Joseph *et al*., 1985; Spouge and Baird, 1986; Shaul and Harrison, 1997; Hassink *et al*., 1996; Lerone *et al*., 1997). Anorectal and urogenital malformations are rarely fatal, although some associated anomalies (cardiac, renal) can be life threatening (Javid *et al*., 1998; Glasier *et al*., 1987; Joseph *et al*., 1985; Spouge and Baird, 1986; Shaul and Harrison, 1997; Hassink *et al*., 1996; Lerone *et al*., 1997; Smith, 1987).

The aim of this study is to determine congenital heart disease in babies with Imperforate Anus.

MATERIALS AND METHODS

Prospective study was carried out between February 1999 and January 2006 and consisted of 93 consecutive children with IA. The study included children presenting with IA at the birth time.

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Echocardiography was done in all patients. Associated anomalies were studied and congenital heart anomalies were evaluated by Echocardiography.

Studied parameters: Age, sex, associated congenital hearts anomalies types and mortality.

Statistics: Descriptive finding reported as Mean± Standard Deviation (SD) and frequency/ percentage. For analysis data, used SPSS 11.5 for windows and T-test, Chi-square test. The level of meaningfulness was considered as $p<0.05$.

RESULTS AND DISCUSSION

The study was undertaken in 93 patients with IA, 48(51.6%) boys and 45(48.4%) girls. About 47 (50.5%) of them had congenital heart anomalies. Details of congenital heart anomalies were shown in Table 1 and 2.

Echocardiography was performed in 87 (93.5) of patients and were abnormal in 48.3% of studied cases.

6 (6.5%) of patients had sianosis and 10 (10.8%) of them had pulmonary hypertension. Mortality rate of studied patients with IA was 12.9%.

Mean age of male patients was 1.02±0.146 day and Mean age of female patients was 1.02±1.51 day ($p = 0.936$). Mean age of died patients was 1.17±0.389 day and Mean age of improved patients was 1.02±1.51 day ($p = 0.100$).

Anorectal malformations are common congenital anomalies occurring in 1:5000 live births (Alford and Mcllhenney, 1997). There is wide variation in type of ARM and the range of associated anomalies (Boocock and Donnai, 1987).

Weiner and Kiesewetter (1973) in their study found that 26(11.7%) out of 222 patients with anorectal malformation had associated anomalies of cardiovascular system. Hoekstra *et al.* (1983) noted an incidence of 12% while Hassink *et al.* (1996) noted an incidence of 21%.

We observed it in 50.5% cases in the present series. Weiner and Kiesewetter (1973) observed that the most common associated cardiac anomalies were Tetralogy of Fallot (TOF) and Ventricular Septal Defect (VSD), but in the present study, Atrial Septal Defect (ASD) was the most common associated cardiac anomaly.

Cardiovascular malformations are among the common associated anomalies which contribute significant to the high mortality rate of infants with anorectal malformation (Weiner and Kiesewetter, 1973).

In the present study mortality of patients with anorectal malformation associated with Cardiovascular malformation was significantly high.

Table 1: Congenital heart anomalies at the base of gender

	Gender		
Congenital heart anomalies/sex	Male	Female	P_V
Atrial septal defect	10	9	0.921
Ventricular septal defect	3	2	0.531
Patent ductus arteriosus	5	4	0.541
Tricuspid regurgitation	4	3	0.536
Mitral regurgitation	2	2	0.667
Tetralogy of fallot	1	1	0.736

Table 2: Congenital heart anomalies at the base of Mortality

	Mortality		
Congenital heart anomalies/mortality	Dead	Improved	P_V
Atrial septal defect	1	18	0.243
Ventricular septal defect	0	5	0.495
Patent ductus arteriosus	1	8	0.673
Tricuspid regurgitation	1	6	0.435
Mitral regurgitation	1	3	0.430
Tetralogy of fallot	0	2	0.757

CONCLUSION

Associated anomalies such as congenital heart disease are present in a high percentage of patients with anorectal malformations. Many of these associated anomalies are serious and long term prognosis of child with anorectal malformations is often more dependent on extent of these associated anomalies than on anorectal malformations itself. Systemic and radiological examination in neonatal period to detect associated anomalies at the earliest phase and should be managed immediately to prevent future morbidity and mortality.

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