

POSTOPERATIVE COMPLICATIONS AND ASSOCIATED MORTALITY IN PATIENTS BELOW 18 YEARS OF AGE WITH CONGENITAL HEART DISEASE

Dr. Atul Gupta¹, Dr. Vinod G. Agrawal², Dr. Bhupesh D. Shah³, Dr. Pranav A. Modi¹, Dr. Amit Chaudhary^{4*}

1. Assistant Professor, Dept. of CTVS, NHL M Medical College, Ahmedabad

2. Professor and Head, Dept. of CTVS, NHL M Medical College, Ahmedabad

3. Associate Professor, Dept. of CTVS, NHL M Medical College, Ahmedabad

4. Assistant Professor, Dept of CVTD, Uttar Pradesh University of Medical Sciences, Safai.

ARTICLE INFO

ABSTRACT

ORIGINAL RESEARCH ARTICLE

Article History

Received: April' 2019

Accepted: May' 2019

Keywords: Congenital heart disease, postoperative complication, mortality, cardiac complication.

Corresponding author*

Congenital heart disease (CHD) is present in about 9 of every 1,000 live-born children. Children with CHD are surviving longer, and a better understanding of the long-term complications of CHD is continuously emerging. Hence, it is important to be comfortable with the primary care requirements for these children. A thorough understanding of the anatomy and morphology of complex congenital heart disease is essential for the successful management of patients with complex congenital heart disease and to avoid unwanted complications. A present retrospective observational study was designed to assess the rate of mortality associated with various complications postoperative in children with congenital heart disease. Total of 244 patients were included in the study. 84 were reported with various complications. And 48 patients were died early or late follow up after the operation. The percentage of mortality in patients with complex congenital heart disease was found to be higher.

©2019, www.medrech.com

INTRODUCTION:

Congenital heart diseases are among the most common congenital birth defects occurring in about 1 in 100 living birth.¹ A complication is an event or occurrence that is associated with a disease or a health care intervention, is a departure from the desired course of events, and may cause, or be associated with suboptimal outcome.² An operative or procedural complication is any complication, regardless of cause, occurring within 30 days after surgery or intervention in or out of the hospital, or after 30 days during

the same hospitalization subsequent to the operation or intervention.³

Surgical complications remain a frustrating and difficult aspect of the operative treatment of patients.⁴ Regardless of how technically gifted and capable surgeons are, all will have to deal with complications that occur after operative procedures.⁵

A thorough understanding of the anatomy and morphology of complex congenital heart disease is essential for the successful management of patients with complex congenital heart disease and to avoid unwanted complications.⁶

The present study is designed to delineate and describe the different complications including mortality occurs postoperatively in the patients with congenital disease and below the age of 18 years.

MATERIAL AND METHOD

A retrospective study was performed from November 2010 to February 2013 for all the patients admitted in General Hospital, in the urban region of India. The subjects were chosen for the study and the inclusion and exclusion criteria were laid down. Median follow up period after detected complication was 60 days including initial post-discharge period.

INCLUSION CRITERIA:

- Patients with both cyanotic and acyanotic congenital heart disease with age below 18 years were included.
- Patients operated either elective or emergency basis.
- Patients with both simple and complex congenital heart disease.

EXCLUSION CRITERIA

- Any patient above the age of 18 years.
- Patients suffering from life danger ailment.

- Complications are not related to gender differentiation.

RESULTS AND DISCUSSION:

Study Population:

During the stipulated time for the study total, 250 patients of both genders were operated in the hospital. Six patients were operated for rheumatic valvular heart disease have been excluded from the study. Total of 244 patients was considered for the study.

Among the 244 patients total 84 patients were identified with complications. And out of 84 patients, 48 mortality were observed rest of the major complications. Minor complications are also present in some cases.

Reexploration and Wound infection:

From the present study, it was evident that 13 patients were reexplored for high drain output. Upon follow-up, 6 patients were found with wound infection.

A total of 11 cases were found with wound infection and were associated with complex congenital heart disease with low cardiac output.

Table: Patients associated with re-exploration and wound infection in patients with simple and complex congenital heart disease

Complication	Simple Congenital Heart Disease	Complex Congenital Heart Disease
Reexploration	2	9
Wound Infection	0	11

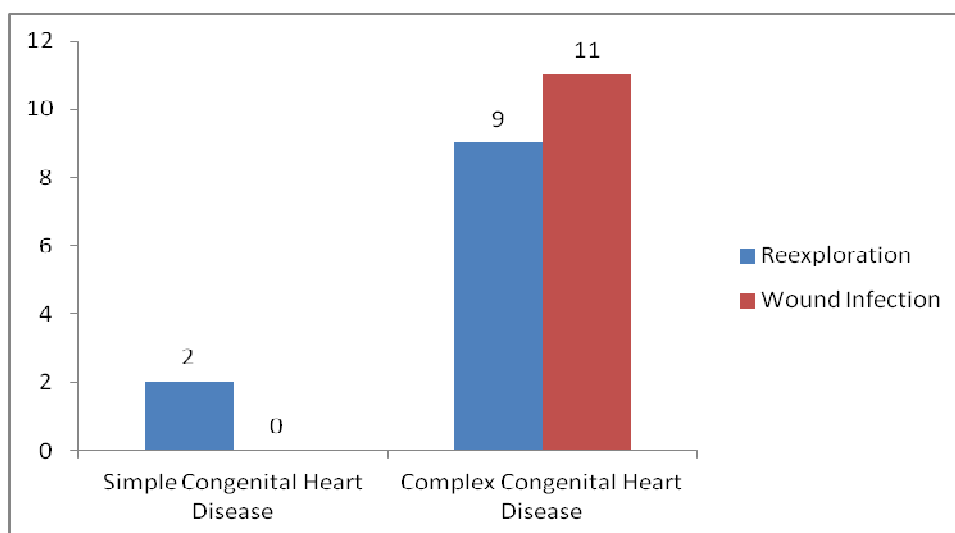


Fig 1: Patients re-explored and reported with wound infection

Cardiac and respiratory complication-

Cardiac (11) and respiratory (9) complications were usually present in the early postoperative period and in subsequent follow up these are well tolerated. So a number of

cases with these complications were significantly low in late follow-up. The no. of patients with cardiac and respiratory complications were found higher with patients having complex congenital heart disease.

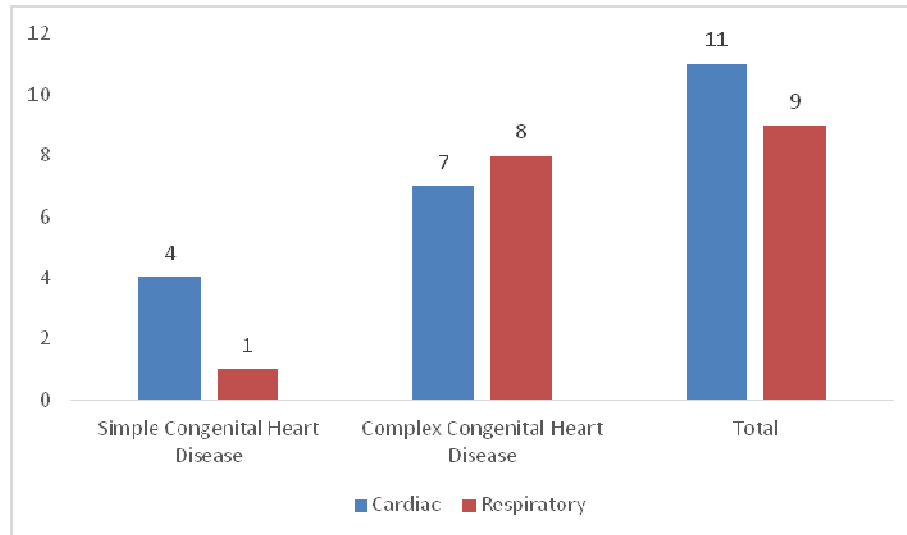


Fig 2: Patients with cardiac and respiratory complications with simple and complex congenital heart disease

Other Complications:

Fever was a common complication (15) present in the early postoperative period and responded well with antipyretics and cold sponging. Seizure (4) requiring long term antiepileptics with neuromedicine consultation. In long term late follow up, scar-related problems (6) present in some of the sternotomy incisions. Other few patients (15) were also observed with metabolic complications which were managed when followed up.

Mortality the major complications-

Total 48 (19.6%) early or late mortalities were reported among 244 patients. Among the mortalities cases were observed with the distribution of age and weight recorded at the time of operation. As per the observations, it was evident that a higher percentage of 43.75% (21) of mortality were associated with the patients with the age of lesser than one year.

Also, higher no. of mortalities 29 (60.41%) were found to be associated with the patients having complex congenital heart disease.

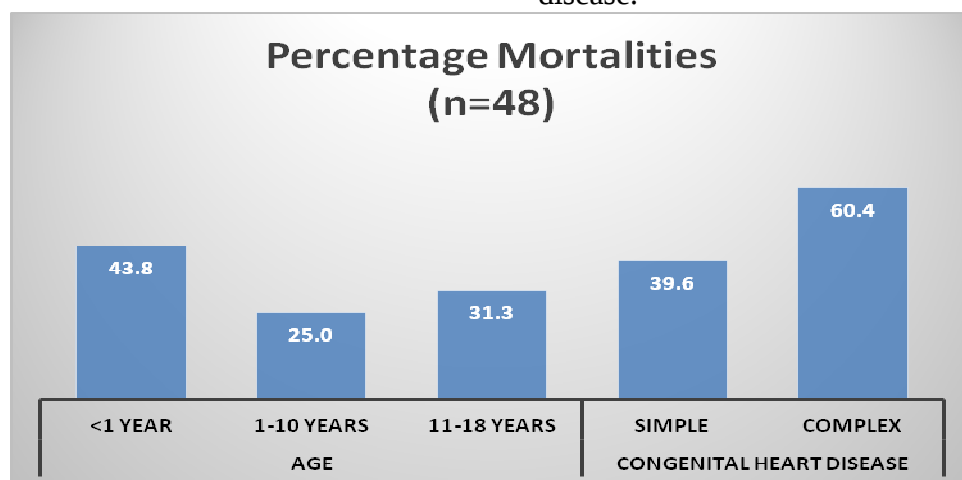


Fig 3: Percentage mortality among different groups

DISCUSSION:

From the present study, it is evident that 34.42% of patients were found with major and minor complications. The prevalence of various complications was found to be cardiac and wound infection, 4.50% respectively, 5.32% were re-explored, 3.36% were having a respiratory complication, and 6.14% were having a fever which was managed with analgesic and cold sponging. The findings are in accordance with the study done by Mirzai M. *et al.*, 2015 where the researchers stated that the overall adverse cardiovascular complications were respectively, renal complications (44.3%), lung (40.3%), anemia (35.9%), heart (34.4%), gastrointestinal (17.2%), brain (14.2%), need for re-intubation of the trachea 11.3%), infection (7.8%) required reoperation (5.9%) and vascular complications (1.4%).⁷

19.6% of patients were recorded with late or early mortalities among 244 patients operated with congenital heart disease. The rate of mortality was higher in the patients with complex congenital heart disease which is same as the findings of Farahani *et al.*, 2016, who found that the incidence of overall mortality was significantly higher in children with moderate (3.9%) and severe (8.2%) CHD.⁸

Conflict of Interest: None to declare

Funding: None

REFERENCES:

1. Lingaiah, K., Parshwanath, B. A., Mysore, S. R., Krishnamurthy, B. & Ramachandra, N. B. A rare case of congenital heart disease with ambiguous genitalia. *Indian J. Hum. Genet.* 16, 166–8 (2010).
2. Bird, G. L. *et al.* Neurological complications associated with the treatment of patients with congenital cardiac disease: consensus definitions from the Multi-Societal Database Committee for Pediatric and Congenital Heart Disease. *Cardiol. Young* 18, 234–239 (2008).
3. Cooper, D. S. *et al.* Pulmonary complications associated with the treatment of patients with congenital cardiac disease: consensus definitions from the Multi-Societal Database Committee for Pediatric and Congenital Heart Disease. *Cardiol. Young* 18, 215–221 (2008).
4. Chavan, D. R., B B, M., Rushabh, S. & Shankar, B. Prospective comparative study of complications of laparotomy wound in elective and emergency surgery. *J. Evol. Med. Dent. Sci.* 3, 5872–5881 (2014).
5. Sørensen, L. T. *et al.* Risk Factors for Mortality and Postoperative Complications After Gastrointestinal Surgery. *J. Gastrointest. Surg.* 11, 903–910 (2007).
6. Gilboa, S. M., Salemi, J. L., Nembhard, W. N., Fixler, D. E. & Correa, A. Mortality Resulting From Congenital Heart Disease Among Children and Adults in the United States, 1999 to 2006. *Circulation* 122, 2254–2263 (2010).
7. Mirzaei, M., Mirzaei, S., Sepahvand, E., Rahmanian Koshkaki, A. & Kargar Jahromi, M. Evaluation of Complications of Heart Surgery in Children With Congenital Heart Disease at Dena Hospital of Shiraz. *Glob. J. Health Sci.* 8, 33–8 (2015).
8. Faraoni, D. *et al.* Post-Operative Outcomes in Children With and Without Congenital Heart Disease Undergoing Noncardiac Surgery. *J. Am. Coll. Cardiol.* 67, 793–801 (2016).

1.