

Complications of Corrective Surgery in Preterm Neonates with Congenital Heart Defects: What is the Solution?

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ABSTRACT

Mild congenital heart defects require no treatment, while severe forms of these diseases need immediate interventions. There are several limits in preterm neonates on drug interventions, interventional procedures, and even heart surgery due to the prematurity of pulmonary, renal, and central nervous systems. Considering the mentioned points, the collaboration of other medical professions, particularly neonatologists, is needed in the treatment of these newborns. The application of surgical and interventional instruments are associated with limitations owing to the low birth weight in these neonates. Therefore, it is essential to review and modify the treatment program for this group of patients. By the advancement of surgical treatments mainly in fetal course and the approval of their efficiency, designing a new interdisciplinary field is necessary. In developing countries, such as Iran, the prenatal diagnosis of congenital heart diseases is difficult because of the lack of expertise in this area. On the other hand, abortion seems to be problematic due to the religious reasons. The legal gestational age for abortion is less than 20 weeks, and the probability of dealing with these kinds of diseases is more than developed countries.

During several years, we encountered at least 15 cases with the above-mentioned criteria, five of whom required an immediate intervention. Three patients were dextro-Transposition of the great arteries, one patient had pulmonary atresia with ventricular septal defect, and the two other ones were suffering from coarctation of the aorta and tricuspid atresia type 1A, who all underwent the palliative surgery.

Keywords: Congenital heart disease, Preterm neonate, Surgery

Introduction

Complex congenital heart diseases are the most common and severe congenital anomalies among neonates. These diseases are more likely to happen in preterm newborns with the gestational age of less than 37 weeks (1, 2).

Nowadays, due to the development of hospital care quality, the number of preterm neonates is arising. Accordingly, the number of the cases with these congenital heart diseases increases.

According to the interventional principles, while no specific treatment has been prescribed for mild congenital heart defects, severe forms of these diseases need urgent interventions (1).

Given the insufficient development of some vital organs, such as lungs, kidneys, and central nervous systems, in preterm neonates, drug interventions and even heart surgery may be accompanied by several limitations (1, 3).

Consequently, the treatment of these subjects requires the collaboration of other medical professions, particularly neonatologists (1). Moreover, due to the insufficient development of body's organs in pre-term newborns and their lower birth weight than term newborns, the application of surgical and interventional instruments is associated with several limitations.

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Hence, it seems essential to review and modify the treatment programs for this group of patients (4).

In addition, recent advancements in the interventional surgical treatment of pre-term newborns and the approval of their efficiency necessitate designing a new interdisciplinary field.

Given the development of the gastrointestinal system, feeding and its tolerance should be cautiously considered. Otherwise, it may cause serious complications.

Moreover, in these patients, the drug metabolism and therapeutic window is generally narrow. Therefore, the collaboration of a clinical pharmacologist is necessary.

Cooperation of perinatologists, clinical pharmacologists, neonatologists, and pediatric cardiologists with neonatal cardiothoracic surgeon is essential for the treatment of these patients.

Conclusion

In developing countries such as Iran, the prenatal diagnosis of congenital heart diseases is difficult because of the lack of experts in this area. On the other hand, abortion seems to be problematic due to the religious reasons. The legal gestational age for abortion is less than 20 weeks, and the probability of dealing with these kinds of diseases is more than developed countries.

During several years, we encountered at least 15 cases with the above-mentioned criteria, five of whom required an immediate intervention. Three patients were dextro-Transposition of the great arteries, one patient had pulmonary atresia with ventricular septal defect, and the two other ones

were suffering from coarctation of the aorta and tricuspid atresia type 1a, who all underwent palliative surgery.

It could be concluded that, it is crucial to establish a new discipline for training neonatal heart surgery fellowships. Furthermore, special operation room facilities and heart surgery neonatal intensive care unit should be considered.

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Conflicts of interests

Authors have no conflict of interest.

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