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# Aspirin as Anticoagulant Therapy in Children After Surgical Repair of Complex Congenital Heart Defects – Kosovo Experience

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**Abstract**

Background. The most often identified congenital condition affecting infants is congenital heart disease (CHD), which affects 0.8% to 1.2% of live births globally. In general, congenital heart defects are heart structural abnormalities, (or) great vessels that are present at birth. Children with untreated congenital cardiac defects are perpetually hypoxic, have a lower quality of life, and have shorter lifespans.

Objectives. The purpose of the presentation is to highlight the importance of red blood cells, hemoglobin, and hematocrit and the outcomes of antithrombotic medication administered to kids who had Glenn or Fontan palliation.

Methods. In the years 2021 to 2022, we looked at samples of 40 children from various Kosovo regions who had a complex CHD, diagnosed in the postnatal period.

Results. There were 40 kids with complex CHD, one form of palliative intervention, such as Glenn or Fontan, has been carried out in each of them. Surgery has been performed in various European nations, the USA, and Turkey as a result of the lack of heart surgical services in Kosovo. After undergoing cardiac surgical procedures, we measured the red blood cell, hemoglobin, and hematocrit levels in children with complex CDH using Aspirin and compared the results to 30 healthy children.

Conclusion. In complex CHD cases, Glenn and Fontan palliations surgeries are the preferred approaches. There are numerous clinical and laboratory indications of complications after intervention. These youngsters require very sophisticated assessment and follow-up, which typically requires a multifaceted approach.

## Introduction

Congenital heart diseases (CHD) are the most commonly diagnosed congenital disorders in newborns afflicting approximately 0.8% to 1.2% of live births worldwide. In general, CHD are a structural abnormality of the heart, (or) great vessels that are present in birth. Also, CHD are the leading cause of morbidity and mortality in neonatal and early childhood age. Although many etiologic investigations have been conducted, only approximately 15% of cases of CHD can be attributable to a known cause. The CHD incidence and mortality are substantially heterogeneous across the world. The limited knowledge about the etiologies of CHD and the high heterogeneity in CHD epidemics constitutes the major obstacles for CHD prevention and early screening of children. Although the majority of CHD have a good natural course without or after cardio surgical intervention, a considerable number of them are complex, requiring several cardio surgical and cardio logical interventions, sometimes with a poor prognosis or with many limitations in the life. It past 50 years since Francis Fontan pioneered the operation that today bears his name. Initially designed for patients with tricuspid atresia, this procedure is now offered for

a vast array of congenital cardiac lesions when a circulation with two ventricles cannot be achieved. As a result of technical advances and improvements in patient selection and preoperative management, survival has steadily increased, and it is estimated that patients operated on today may hope for a 30-year survival of >80%. Here we present children with complex CHD born in Kosovo, in a country with limited resources including cardio surgical treatment, the course after surgery, assessment and complications after surgery [11].

**Aim of presentation** is to present the value of the red blood cell, hemoglobin, and hematocrit levels in children with complex CDH as a good parameter to assess children after Glenn or Fontan procedure and possible complications in Kosovo as a country with limited resources and compared the results of children using Aspirin, those without Aspirin and 30 healthy children.

**Results**

During the period 2021 -2022 we analyzed samples of 40 children from different parts of Kosovo, who has been diagnosed, mostly in postnatal period, with some type of complex CHD. In all of them one of type palliation, Glenn or Fontan has been done. As a consequence of missing cardio surgical services in Kosovo surgical intervention has been done in different European countries, in USA and Turkey. The most frequent primary diagnosis was atresia of the tricuspid valve, in 25 patients, then atresia of the pulmonary artery in 2 cases and single ventricle with 7 cases, atresia of the mitral valve is present in 6 cases. 27% of children were treated with Aspirin.

100% of children with congenital heart malformations included in the research performed the first intervention, 80% of the children performed the second Gllen intervention and 55% of the children performed the third Fontan intervention. The average value of erythrocytes in the study group is 5.60 109 /l (SD ±1.40 109 /l) range 2.8-8.8 109 /l. The average value of erythrocytes in the study group with antithrombotic therapy is 5.63 109 /l (SD ±1.43 109 /l) range 2.8-8.9 109 /l. The average value of erythrocytes in the study group without antithrombotic therapy is 5.20 109 /l (SD ±1.33 109 /l), range 3.7-8.7 109 /l. The average value of erythrocytes in the control group is 4.1 109 /l (SD ±0.56 109 /l), range 3.2-5.4 109 /l. The average value of hemoglobin in the study group is 140.35 mg/L (SD ±22.57 mg/L), range 80.0-198.0 mg/L. The average value of hemoglobin in the study group with antithrombotic therapy is 144 mg/L (SD ± 24.12 mg/L), range 80.0-199 mg/L. The mean value of hemoglobin in the study group without antithrombotic therapy is 135.18 mg/L (SD ±18.69mg/L), range 103-171 mg/L. The average value of hemoglobin in the control group is 110.21 mg/L (SD ± 16.43 mg/L), range 84 - 138 mg/L. The average value of hematocrit in the study group is 45.22% (SD ±9.0%), range 26.0-73.5%. The average value of hematocrit in the study group with antithrombotic therapy is 46.60% (SD ±9.5%), range 27.0-73.5%. The mean hematocrit value in the study group without antithrombotic therapy is 41.47 % (SD ±7.49%), range 32-64%. The average hematocrit value in the control group is 34.% (SD ±5.06%), range 20-46%.

**Conclusion**

Glenn and Fontan palliations procedures are methods of choice in some complex CHD. Results are dependent form age of diagnosis, type of pathology, associated anomalies and of course, age at the interventions, center where surgery was done. Complications are often, with diverse clinical and lab manifestations. Children using Aspirin after Complex CHD intervention have increased value of red blood cells, hemoglobin, and hematocrit compering with children with complex CDH that don’t use Aspirin and also compared with healthy children. Assessment and follow up of those children are very complex and usually needs multidimensional approach.

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