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## **Pediatric extracorporeal life support systems and pediatric cardiopulmonary perfusion systems: Now and future**

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Pediatric cardiac perfusion systems are still the most important systems for the success of the pediatric cardiac surgery. Pediatric extracorporeal life support (ECLS) is instituted for the management of life threatening pulmonary or cardiac failure. Although new technologies has developed, the pediatric cardiopulmonary circuit size shows so much diversity when compared with the adult perfusion systems. For example, the prime volume used in cardiac surgery for adults is about 25-33% of the total blood volume but the pediatric cardiac patients are 2-3 times more of the total blood volume, so we have to search for new technologies. There are different types of roller and centrifugal pumps used in pediatric cardiopulmonary perfusion systems like Medos Deltastream DP3, Levitronix CentriMag, Medtronic Affinity CP, Terumo CAPIOX SP, Medtronic BP-50 Bio-Pump etc. These pumps priming volume are different from each other so we have to use the best pump for our pediatric cardiac patients. There are also different types of oxygenators and arterial filters. The ultrafiltration perfusion systems can also be used for the increase of heamoglobine levels, for removing the inflammation mediators, citrate, lactate from the blood. (Medivator Hemocor HPH Jr, Terumo CAPIOX Hemoconcentrator, Medos Hemofilter Pro 60 etc). When pediatric cardiac patients need a myocardial or pulmonary support or is waiting for the operation time, we use pediatric extracorporeal life support systems: ECMO (Extra Corporeal Membrane Oxygenator), and ECCO2R (Extra Corporeal CO2 removal) are used less than 30 days and, VAD (Ventricular assist devices) are used more than 30 days for cardiac supports.

### **Biography**

Tolga Kurt has completed his PhD from Pamukkale University School of Medicine and Post-doctoral studies from Bulent Ecevit (Karaelmas) University School of Medicine. He became a cardiovascular surgeon at the age of 32 years. He and his colleagues opened the first Cardiovascular Surgery Simulation Laboratory in 2013 (third in Europe) for the cardiac surgery operations and cardiac perfusion simulation. He gives lessons to the perfusionist to improve their use of pediatric extracorporeal life support and pediatric cardiopulmonary bypass systems. He has published more than 30 papers in reputed journals and has been serving as an Editorial Board Member of repute. He also published a book on cardiopulmonary bypass perfusion.

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