Clinical Applications of Cardiac Markers in Pediatrics

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The clinical use of common cardiac biomarkers, such as brain natriuretic peptides and troponins, has traditionally been limited to adult populations in the assessment of heart failure and acute coronary syndrome, respectively. While many have discounted the value of these markers in pediatric populations, emerging evidence suggests they may be useful in the diagnosis and prognostication of many cardiac and noncardiac pathologies in neonates, children, and adolescents, and an increasing number of pediatric hospitals are routinely measuring cardiac markers in their clinical practice. In this presentation, I will summarize and critically evaluate the current literature regarding the application of cardiac biomarkers for clinical decision-making in the pediatric population. Main potential clinical indications to be discussed include primary cardiac disease, immune-related conditions, and noncardiac disease. Important diagnostic and interpretative challenges will also be described in relation to each potential indication. Despite a general lack of clinical awareness regarding the value of cardiac biomarkers in pediatrics, there is increasing literature to support their application in various contexts. Cardiac biomarkers should be considered an undervalued resource in the pediatric population with potential value in the diagnosis and prognosis of myocarditis, congenital heart disease, and heart failure, as well as in the assessment of severity and cardiac involvement in immune-related and other systemic conditions. While interpretation remains challenging in pediatrics due to the age- and sex-specific dynamics occurring throughout growth and development, this should not prevent their application. Future research should focus on defining evidence-based cut-offs for specific indications using the most up-to-date assays.