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New Guidelines Issued to Manage Heart Failure in Children

With heart failure being a significant cause of childhood health conditions and death, new guidelines have been issued in order to assist healthcare providers both in the emergency departments and primary care to identify and treat heart failure in children with undiagnosed heart disease and symptoms of possible heart failure.

Developed by the Children's Heart Failure Study Group of the Canadian Cardiovascular Society in collaboration with the Canadian Pediatric Cardiology Association, these guidelines are published in the December issue of the Canadian Journal of Cardiology.

Paul F. Kantor, MBBCh, of the Stollery Children's Hospital, University of Alberta, led the project and explained that because symptoms of heart failure in children are variable and unlike those of adults, a large number of primary care and emergency department practitioners have little practical experience with the presentation or management of this condition.

Kantor further specified that currently, the vast majority of new-onset heart failure cases are diagnosed at a very late stage. The patient will have reached a state of severe decompensation, at which point survival rates for five years without cardiac transplantation are less than 50%, making the timely diagnosis and treatment vital for these children.

Defined as a clinical syndrome in which the heart fails to pump blood adequately to meet the requirements of the body's organs, heart failure in children may develop at any stage of childhood or adolescence or be present at birth. Congenital heart diseases and primary cardiomyopathies (diseases of the heart muscle, accounting for 60% of children requiring a cardiac transplant), are the key causes of this condition in developed countries. There, the prevalence of primary cardiomyopathy is between 0.8 and 1.3 cases per 100,000 children up to the age of 18, however it is reported to be ten times higher in infants up to one year old. Congenital heart disease affects almost one percent of live births, yet just a small ratio of these defects are serious enough to result in heart failure during childhood.

Inflammatory diseases, endocrine derangements, metabolic disorders and kidney disease are the systemic processes known to cause heart failure, and in a US yearly total, ten to 14 thousand children are hospitalised with heart failure as one of their diagnosis. Of those, about 27% (approximately 3,000) have abnormalities of the heart muscle (including irregular heart rhythm) as an underlying cause.

Parasitic infection, nutritional deficit, and rheumatic heart disease appear to be the main causes of heart failure in childhood on a global scale.

Differing from those in adults, the symptoms of heart failure in children hail from two unique clinical features according to the guidelines' authors, who list the possible coexistence of structural congenital heart lesions, with simultaneous over-circulation to the lungs, and under-perfusion to the body (when the two circulations are linked in parallel by an intracardiac shunt or a patent arterial duct); and a change in symptom complexes over time from infancy through adolescence. In infants and young children, these are mainly respiratory and feeding difficulties.

To help physicians detect heart failure in children the guidelines offer five recommendations; for assisting in the diagnosis there are 16, and for the early management and control of heart failure the document offers 10 recommendations.
The guidelines also include a table summarizing the typical features of heart failure in children, using the New York Heart Association (NYHA) and Ross classifications of functional class, and a helpful algorithm defining the treatment options for managing heart failure.

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