

JOINT EVENT ON
24TH WORLD CARDIOLOGY CONFERENCE
and
25TH ANNUAL CARDIOLOGISTS CONFERENCE
September 17-18, 2018 Hong Kong

Prevention of cardiomyopathy in systemic diseases in pediatrics

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Background: New echocardiography imaging modalities (tissue Doppler echocardiography, speckling tracking imaging, and real time 3 dimensional echocardiography) offer new methods to predict early asymptomatic myocardial insult in extra-cardiac systemic diseases. Oxidative stress plays a critical role in development of cardiomyopathy secondary to systemic diseases. Antioxidant drugs as carvedilol and alpha lipoic acid may have a role as cardio-protective agents.

Objective: This presentation aimed to delineate the feasibility of recent echo technique in detection of asymptomatic myocardial dysfunction in systemic diseases and explore the role of some antioxidant drugs in prevention of these insult.

Subjects & Methods: Group of Systemic diseases: (Type 1DM, bronchial asthma, ALL, thalassemia, sickle cell anemia, iron deficiency anemia, chronic liver diseases, protein energy malnutrition, critically ill children, severe motor and intellectual disabilities, neonatal sepsis and infant of diabetic mother). All studied patients were subjected to a full medical history, thorough clinical examination, conventional Doppler echocardiography as well as tissue Doppler imaging, speckling tracking and real time 3 Dimensional Echocardiography (3D strain). Alpha lipoic acid was used for prevention of diabetic cardiomyopathy and carvedilol was used for prevention of Adriamycin induced cardiomyopathy in children with ALL.

Conclusion: The use of newer echocardiographic techniques , including tissue Doppler, speckling tracking and RT3DE, showed great potential benefits in detection of silent cardiac disorders and antioxidant drugs (alpha lipoic acid and carvedilol) had a significant role in prevention of this cardiac dysfunction.

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