

8th Global

Cardiologists & Echocardiography Annual Meeting

July 18-20, 2016 Berlin, Germany

Which type of stem cells and what method for implantation should be preferred in pediatric cardiology (6 years of experience)

Aris Lacis¹, Inguna Lubaua², Andis Lacis² and Andrejs Erglis³¹University Children Hospital, Latvia²Riga Stradins University, Latvia³The Latvian Institute of Cardiology, Latvia

Context: On a global level, stem cell research has been a major challenge during the last decade. There have been achieved positive results in experimental studies on animals and there have been identified several conditions in adult population where bone marrow derived progenitor stem cell transplantation (BMPST) may play a crucial role. Though, little is known about possible implementation of the BMPST in pediatrics, dilated cardio-myopathy and pulmonary arterial hypertension in particular. There are uncertainties around the destiny of stem cells after their injection into the blood stream. In particular, it regards migration and homing of implanted cells in the target tissues. As yet unclear is the possible role of sympathetic nervous system in the context of osteo-reflexotherapy. There is still no definitive answer to the question on which is the preferred type of stem cells to be use for transplantation in different settings.

Objective: To determine the role of BMPST in management of critically ill pediatric patients followed by assessment of safety and efficacy of the procedure.

Design, Settings, Participants: Two patients (9 and 15 years old) with trisomy 21 and severe pulmonary arterial hypertension due to uncorrected large ventricular septal defects were been admitted to our department to receive intrapulmonary BMPST procedure. Both patients underwent radionuclide scintigraphy before the procedure, followed by repeated scans 6, 12, 24 and 36 months after BMPST. Latest results show improvement of lungs vascularization. Seven patients (4 months – 17 years) with dilated idiopathic cardio-myopathy were admitted for intra-myocardial BMPST procedure. All patients underwent repeated clinical examination every two months, up to 6 years after cell transplantation. We observed improvement of left ventricular ejection fraction, decrease of left ventricular end diastolic dimension by echocardiography and cardio-thoracic index at chest X-ray exams, reduction of serum brain natriuretic peptide serum levels and decrease of the stage of heart failure from stage IV to stage I, by NYHA classification. No peri-procedural harmful side effects were observed.

Conclusions: The results are promising and we suggest that BMPST might be used for the stabilization of the patient to get the time for further symptomatic treatment or serve as a bridge for heart or lung transplantation.

Biography

Aris Lacis is a Cardiac Surgeon, Professor, MD, PhD graduated from Riga Medical Institute in 1961. He is a General and Thoracic Surgeon in P. Stradina University Hospital in Riga (1964–1969), Thoracic and Cardiac Surgeon in the Latvian Centre for Cardiovascular Surgery (1969–1994), since 1994 until 2012, he is the Head of Pediatric Cardiology and Cardiac Surgery Clinic in University Children's Hospital, Riga and since 2012; he is a Consulting Professor of this Clinic. He serves as a Vice-President of Latvian Society for Cardiovascular Surgery, President of Latvian Association for Pediatric Cardiologists and is the author of 395 scientific publications, 3 monographs and 13 patents. He is an investigator for more than 10 clinical trials including cardio-surgical procedures performed under deep hypothermia, hybrid procedures etc.

aris.lacis@apollo.lv

Notes: