

The diagnostic role of gated myocardial perfusion imaging and radionuclide ventriculography in severe congenital heart disease

Dragana P. Sobic-Saranovic MD, PhD, Smiljana V. Pavlovic MD, PhD, Vera M. Artiko MD, PhD, Vladimir B. Obradovic MD, PhD

Faculty of Medicine, University of Belgrade, Center for Nuclear Medicine, Clinical Center of Serbia, Belgrade, Serbia

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Correspondence address:

P. Dragana Sobic-Saranovic MD, PhD Faculty of Medicine, University of Belgrade Center for Nuclear Medicine, Clinical Center of Serbia, Visegradska 2611000 Belgrade, Serbia

E-mail: dsobic@EUnet.rs, dsobic2@gmail.com, Tel: +381 11 366 3298, Fax:+381 11 36 15 641

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Abstract

Several techniques have been applied for the assessment of severe congenital heart diseases (SCHD) including echocardiography, cardiac catheterization with angiocardiography, and more recently, cardiovascular multi detector tomography and magnetic resonance imaging (MRI). The value of gated single photon emission tomography (GSPET) myocardial perfusion imaging (MPI) and radionuclide ventriculography (RNV) for evaluating myocardial ischemia, tissue viability, and left ventricular function in SCHD is less apparent. The risk of radiation exposure is greatest in the youngest patients. Both, GSPET MPI and RNV seem to be underutilized in pediatric clinical practice due to increased radiation exposure. *We have reviewed* basic and specific technical and diagnostic aspects, as well as specific clinical indications of GSPET MPI and RNV in children with SCHD in comparison with other cardiology methods. Some of our own tests are also presented where they apply. In *conclusion*, GSPET MPI and RNV can provide clinical relevant information of functional significance of SCHD in pediatric patients especially when the other cardiology methods are indeterminate. With regard to radiation exposure appropriate patient selection and recommendations for reduction of radiation exposure are of great importance.

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