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eComment: Re: Cardiac stunning in the clinic: the full picture

Authors: Leo Bockeria, Bakulev Scientific Center for Cardiovascular Surgery, Roublevskoe Sh 135, 121552 Moscow, Russia; Olga L. Bockeria, Irina A. Goustova
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The field of interest in cardiology and cardiovascular surgery has been focused on cardiac stunning for >30 years. Obviously, there are different facets of cardiac derangement. The term cardiac stunning includes not only myocardial characterized by myocardial dysfunction, but also endothelial, metabolic, neuronal and electrical stunning [1].

Results of experimental studies on animal models permit differentiation between myocardial and vascular stunning. Results show that, while myocardial function has already recovered, endothelial cells are more severely impaired [2].

There are many published papers focusing on the topic of atrial electrical remodeling, which is defined as the shortening and dispersion of electric refractory period in patients with paroxysmal or persistent tachyarrhythmias [3]. Hence, a concept defined as a cardiac electrical stunning including electrical remodeling and reverse electrical remodeling should be a common characteristic mechanism of cardiac arrhythmias. Certainly studies should be continued and should focus on understanding the mechanism of stunning and innovation in non-invasive cardiovascular imaging is rapidly advancing our ability to image in great detail the structure and function of the heart and vascular system [4]. New technologies in integrated molecular, functional and anatomical visualization (positron emission tomography/computed tomography [PET/CT]) offer a great potential for translating advances in molecularly targeted imaging into humans.

The main advantage of this review is the detailed analysis of different facets of cardiac stunning in clinic and, what is more important, the different therapeutic interventions which the various types of the cardiac injury might require. This aspect is rather important in patients after cardiovascular surgery with cardiac arrest.

At the Bakulev Center for Cardiovascular Surgery detailed studies using echocardiography with tissue Doppler imaging and evaluation of central hemodynamic in early postoperative period were carried out [5]. According to our data, application of temporary biventricular stimulation is favorable for patients with reduced ejection fraction and different facets of myocardial tissue derangement after cardiac surgery. Application of experimental results will provide a new opportunity for the management of patients with different facets of myocardial injury. It will help to understand the mechanism and integration of therapeutic options according to modern state of the problem of cardiac stunning.

References


