Reply to the Letter to the Editor

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We appreciate the comments of Demaria, Fortier, and Perrault regarding our recently published experimental study on the coronary endothelial damage during off-pump coronary artery bypass grafting (CABG) [1].

As pointed out by them, adequate anticoagulation during off-pump CABG appears a very important point to improve clinical results preventing thrombus formation on the damaged coronary endothelium with potential dysfunction [2] of the patients with an increased procoagulant activity [3]. Scanning electron microscope demonstrated that blood cells likely deposited on the damaged endothelium in dog even with 150 U/kg of heparin systemically injected in our recent study [1]. In case of full systemic heparinization (300 U/kg) in our preliminary experimental study, the deposited blood cells on the damaged endothelium decreased in the same dog model.

We also demonstrated in the recent study [1] that humidified gas blowing with heparin and dipyridamole-added lactated Ringer solution not only attenuated coronary endothelial damage related to dry gas blowing but also decreased blood cells deposited on the damaged coronary endothelium than simple humidification. It might be suggested that topical use of heparin and anti-platelet agents with 150 U/kg of heparin systemically injected could be an alternative way to full systemic heparinization especially in patients with risk against full heparinization.

Further studies to establish the optimal technique of off-pump CABG for the morphologic and functional preservation of the endothelium layer should be done to realize truly less invasive off-pump CABG even to the coronary endothelium.

References