Author's response to reviews

Title: Elective Minimally Invasive Coronary Artery Bypass: Shunt or Tournique Occlusion? Assessment of a Protective Role of Perioperative Left Anterior Descending Shunting on Myocardial Damage. A prospective randomized study.

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Version: 2 Date: 7 June 2012

Author's response to reviews:

Dear Dr. Zimvar,

thank you for the comments regarding the manuscript “Elective Minimally Invasive Coronary Artery Bypass: Shunt or Tournique Occlusion? Assessment of a Protective Role of Perioperative Left Anterior Descending Shunting on Myocardial Damage”.

Description of the changes made:

1. Manuscript details – abstract – conclusion (page 3): we would like to underline, that conclusion of our study applies to MIDCAB procedure

…..non-occluded left anterior descending in minimally invasive coronary artery bypass.

2. Revised version of the manuscript – discussion (page 11): we tried to explain differing results of Gürbüz compared to our study

Gumm et al. examined the effect of risk area size on collateral resistance and ischemic region perfusion during LAD occlusion at different sites. They concluded, that small risk areas have significantly lower collateral resistance and receive more collateral flow per mass of tissue compared to large risk areas [22]. A potential explanation to the differing results of Gürbüz compared to our study might be the fact that the anastomotic site of the LAD in MIDCAB is placed more peripherally than in OPCAB.

3. Revised version of the manuscript – discussion (page 12): we added the good advice from reviewer# report to improve the manuscript
However, occlusion time of more than 30 minutes is known to potentially induce wall motion abnormalities and arrhythmias [6]. Accordingly in cases of repeated or difficult anastomosis an intracoronary shunt might be helpful and recommended.

4. Revised version of the manuscript – conclusion (page 13): we added our opinion and our policy with grafting of the non-occluded LAD in MIDCAB at Department of Cardiac Surgery in Hradec Kralove – in the past and at present

Since 1997 we have used proximal and distal snares during MIDCAB at our department. After clinical introduction of shunts we have changed our strategy and used shunts routinely. As they can be occasionally difficult to insert or might displace during completion of the anastomosis we critically discussed tourniquet of the native vessel as an alternative to ensure good visualization of the anastomotic site. The results of our study confirmed this hypothesis by revealing no protective effect of intraluminal shunting on myocardial damage compared to tourniquet occlusion. Accordingly we changed our strategy again keeping it up the surgeon's discretion which method to prefer to achieve a bloodless field in grafting of the non-occluded LAD in MIDCAB.

5. References (page 19): we added one new reference

Gumm et al.

We have revised our manuscript in light of the reviewer# comments. We hope revised version makes our manuscript more acceptable for publication. We are prepared to respond any other comments or recommendations.

Best regards,

Zdenek Sorm Jan Harrer

The first and submitting author Corresponding author