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Graft flushing solution applies myocardial protection properties in coronary artery bypass grafting- initial findings

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OBJECTIVE: The purpose of this pilot study was to evaluate the impact of the graft storage and flushing solution on the myocardium during coronary artery bypass grafting (CABG) procedures. “On- pump” procedures are facilitated by testing the distal anastomoses via repeated flushing of variable amounts into the anastomoses and the downstream myocardium. This prospective single center pilot study compares two different solutions during CABG procedures and their outcome data related to any influence on the myocardium and its metabolism.

METHODS: In total 50 patients were included in this pilot study, after analysis 13(Group A) vs 13(Group B) remained comparable in each group. Patients from one study center undergoing CABG procedure were included in the present study; one group (Group A) received Duragraft®(Somahlution, 2001 Jupiter FL, USA) as flushing and storage solution of the vein grafts, the other group received Biseko®(Biotest Pharma GmbH, Dreieich, Germany) in combination with saline(0,9%) due to the lower volume of Biseko®. Four patients with previous myocardial infarctions and two NSTEMI <48h were included in both groups. GFR was comparable at 62.8 vs 73.2 mL/min in Groups A and B respectively.

RESULTS: The present data suggests that the solution directly influences the perioperative cardiac enzymes. For Group A data showed mean troponin levels (Troponin T high sensitive) of 2598 +/-1637 ng/ and for Group B 4128+/-3504 ng/l at 12 hours(h) post OP. Creatine kinase (CK) reached for Group A 419 +/-211 U/l and for Group B 455 +/-262 U/l 12h post operation. 24h continued this trend with troponin levels for Group A mean 5666 +/- 4126 24h and Group B 13619+/- 4198 ng/l. (p<0,001) CK reached in Group A at 24h: 483+/- 350 U/l and in Group B 668 +/- 762 U/l. For 48h after the operation: Group A troponin levels were: 2655+/-3020 ng/l and in Group B 2869 +/- 3008 ng/l. After 72h the difference was in Group A : 1357 +/-1302ng/l vs Group B 1530 +/-2609 ng/l.

CONCLUSIONS: The graft solution with perfusion of the downstream myocardium provides and influences in on-pump procedures myocardial protection as displayed in this pilot study.