CORONARY ARTERY BYPASS GRAFTS IMPLANTATION IS ASSOCIATED WITH CORONARY VENOUS RETENTION - A LESSON FROM CARDIAC COMPUTED TOMOGRAPHY

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Background: It has not been examined whether the implantation of coronary artery bypass grafts (CABG) can influence coronary venous system itself. To solve this question we used multi-slice computed tomography imaging.

Methods: In 112 (aged 59.4 ± 9.0; 45F) pts., a 64-slice CT (Aquilion 64) was performed. Pts. were divided into 2 groups: CABG (56 pts.) and control - without changes in coronaries (56 pts.). In each case 10 MPR and 3D VR reconstructions (2 mm; ECG-gating), were created from 0% to 90% R-R intervals (step 10%).

Results: In the CABG group average number of coronary veins was 5.27 ± 1.27, in the control 3.07 ± 1.11; a highly statistical difference between groups was noted (p=0.0000). Statistical differences was also observed for following coronary veins: posterolateral (CABG 2.89 ± 1.87 vs. control 2.05 ± 1.91; p=0.0225), lateral (CABG 3.14 ± 1.29 vs. control 2.18 ± 1.65; p=0.0019) and anterolateral (CABG 1.32 ± 0.97 vs. control 0.52 ± 0.93; p=0.0000). Not statistical differences were observed for radical veins: posterior vein (CABG 1.59 ± 1.87 vs. control 1.30 ± 1.79; p=0.4298 NS) and anterior vein (CABG 2.29 ± 1.37 vs. control 1.93 ± 1.48; p=0.1936 NS). An example is presented on the figure below.

Conclusions: Implantation of CABG significantly influence coronary venous system. This might suggest an association between changes in coronary artery circulatory and cardiac venous retention. The significance and pathophysiological meaning of this finding requires further studies.