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eComment. SPECT perfusion quantification for chronic total occlusion

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doi: 10.1093/icvts/ivw134

We would like to congratulate the Nagoya/Fujita group of authors for their effort to increase the level of knowledge pertinent to predictors of the early graft failure after coronary artery bypass grafting (CABG) for chronic total occlusion (CTO) [1].

The reported results were obtained with the intraoperative transit-time flow measurement and with postoperative angiography, which were carried out within 1 month after CABG. The study presents the results of the cut-off values of Q_{mean} and pulsatility index for graft failure differentiated from previous reports and one could interpret them as substantial indicators of early graft failure in the cases when bypass surgery for CTO with an akinetic or dyskinetic area is performed. However, previous studies reported that the regional functional recovery is obtained in the akinetic area after CABG, and that the preoperative SPECT is useful to predict this type of recovery [2], but in the present study only 29% of patients underwent preoperative SPECT.

Recently, we performed the study [SPECT perfusion quantification] with the purpose to increase the level of knowledge for the significance of SPECT as a tool for the prediction of recovery after CABG for the treatment of CTO. Ten subjects were recruited from consecutive patients admitted to our institution (8 men; 2 women; age 59-79 years; mean 71 years]. 99mTc-hexamethylpropylene amine oxime [99mTc-HMPAO] perfusion examination was carried out twice in all patients (before and one year after CABG). In this group of patients the myocardial SPECT was used for an estimation of the relative coronary blood flow (CBF) in the assessment of CBF in every-day clinical practice. Imaging was performed according to the guidelines for the Clinical Use of Cardiac Radionuclide Imaging [4]. A semi-automatic computer method (ICON software) was used to detect the region of interest and to examine the CTO. The cut-off value for the hypoperfusion was established according to normal reference values [4]. Normalization of the CBF in the previously hypoperfused area was found at computed imaging analysis in previously hypoperfused area in 6 patients. Thereby, discordant results were found in 4 patients. Such an approach is certainly useful in monitoring patients before and after CABG. The main drawback of this method is that it is complicated and time-consuming compared to visual assessment, which is generally sufficient for the selection of patients who could benefit from a CABG. Although performed on a small number of patients, our results show that the presented SPECT analysis may contribute to a selection of patients for surgical treatment or to a follow-up after CABG. Such results support the author's allegation.

Conflict of interest: none declared.

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