Percutaneous coronary intervention during extracorporeal membrane oxygenation versus coronary artery bypass graft surgery in high-risk patients

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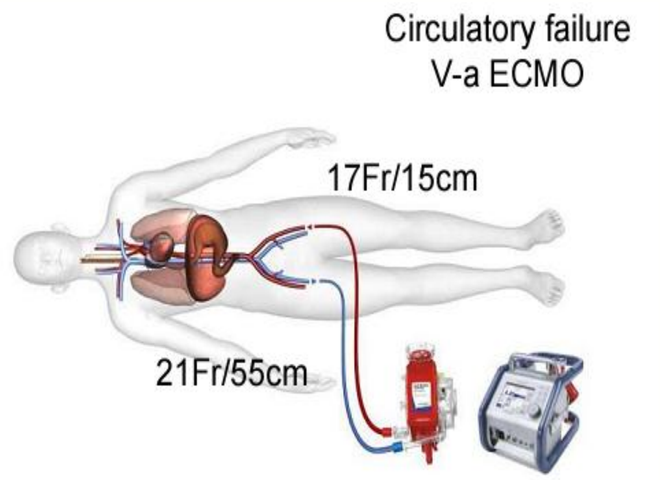
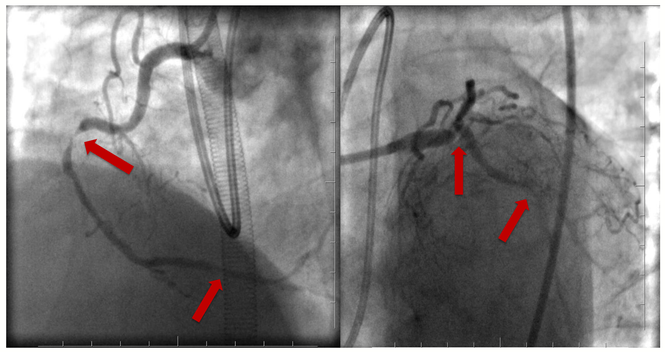
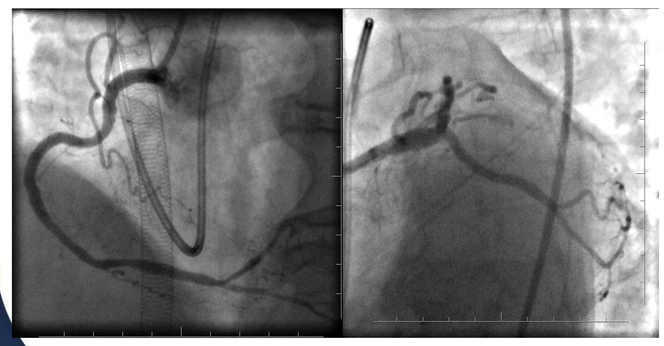


Before PCI-ECMO



After PCI-ECMO



Purpose: To compare the results of PCI during ECMO and CABG surgery amongst patients with multi-vessel coronary artery disease and NSTE-ACS.

Methods: We performed single-center prospective study of 30-day and 1 year follow-up of consecutive high-risk patients with multi-vessel coronary artery disease and NSTE-ACS who underwent either PCI with ECMO or CABG surgery. Study included patients, who had significant comorbidity along with high risk according to EuroScoreII scale and with high SYNTAX score. PCI with ECMO was carried out in patients who were refused to CABG.

Results: Study sample included 69 patients, 16 patients underwent PCI with ECMO, and other 53 patients underwent CABG surgery. Average risk according to GRACE score did not differ significantly between these two groups (PCI-ECMO group 100±22.9, CABG surgery group 95.6±16.4, p=0.2). Both groups did not differ significantly regarding EuroScoreII scale (PCI-ECMO group 4.0±3.7%, CABG surgery group 3,6±1,9%, p=0,28) and SYNTAX score (PCI-ECMO group 30.5±9.3, CABG surgery group 30±8.2, p=0.4).

Revascularization was successful in all cases. During the 30-day period of follow-up, case fatality rate was 12.5% (2 patients) in PCI-ECMO group and 7.5% (4 patients) in CABG surgery group (p=0.27). There were two cases (3.8%) of MI and one (1.9%) MI-related death during postoperative period in CABG surgery group. However, there were no cases of MI during the postoperative period in PCI-ECMO group. In addition, 7 (13.2%) patients from CABG surgery group had heavy bleeding (according to TIMI classification) versus 1 patient (6.2%) in PCI-ECMO group (p=0.22). During the 1-year period of follow-up, 2 patients (12,5%) required further revascularization in PCI-ECMO group versus 1 patient (1,9%) in CABG surgery group.

There were no statistically significant differences in prevalence of endpoints during 1-year period of follow-up. The prevalence of combined endpoint did not differ significantly between groups (25% in PCI-ECMO group, 13,2% in CABG surgery, p=0.13).

Conclusions: PCI-ECMO may be an alternative technique of myocardial revascularization in high-risk patients with multi-vessel coronary artery disease and NSTE-ACS.

Declaration of interest: Authors declare that there is no conflict of any interest.