Adjunctive treatment with a stent-based ventricle to coronary artery bypass (VSTENT) in patients with multivessel coronary artery disease undergoing bypass surgery (ADVANTAGE): pilot phase [Abstract]

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Adjunctive treatment with a stent-based ventricle to coronary artery bypass (VSTENTTM) in patients with multivessel coronary artery disease undergoing bypass surgery (ADVANTAGE): Pilot phase

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Objectives: We here report on the pilot phase of a multicenter European study (ADVANTAGE) using a stent-based approach for surgical ventricle-to-coronary artery bypass (VSTENTTM). In addition to providing flow to the distal vessel, collateral development and arterial remodeling might be induced by VSTENTTM implantation. **Material and Methods:** In 12 patients (61 ± 13years) undergoing multivessel coronary artery bypass surgery a VSTENTTM was implanted between the left ventricle and a marginal branch (n = 6), a diagonal branch (n = 4) or a trifurcation branch (n = 2) distal to a high grade coronary artery stenosis. Surgery was performed on-pump with arrested heart in 4, on-pump with beating heart in 6 and off-pump in 2 patients. Epicardial coronary blood flow measurements (flow wire) including determination of adenosine induced flow reserve and dobutamine stress testing were performed before and after VSTENTTM implantation. **Results:** Flow wire measurements assessed before and 7 days after VSTENTTM implantation revealed a change of coronary flow pattern from diastolic to predominantly systolic (systolic/diastolic flow ratio: 0.3 ± 0.1 to 1.6 ± 0.3; $p < 0.01$). During dobutamine stress testing no regional wall motion abnormalities were detected in the area supplied by the VSTENTTM and none of the patients developed clinical or electrocardiographic signs of ischemia. Angiography proved an immediate procedural success in 11 of 12 cases. Six-months angiographic follow-up will be available at presentation. **Conclusions:** Surgical VSTENTTM implantation was feasible and safe in the short-term follow-up and was associated with a significant change of coronary flow pattern from diastolic to predominantly systolic flow distal to a high grade stenosis of the native vessel at rest and under stress testing.