

**Adjunctive Treatment With a Stent-Based Ventricle to Coronary Artery Bypass (VSTENT™) in Patients With Multivessel Disease Undergoing Coronary Artery Bypass Surgery (ADVANTAGE)**

Peter Boekstegers, Philip Raake, Rabea Hinkel, Gerhard Steinbeck, Sandra Eiffert, Bruno Reichart, Calin Nicol, Grosshadern University Hospital, Munich, Germany

Background: We here report on the Munich experience using a stent-based approach for surgical ventricle to coronary artery bypass which provides systolic instead of diastolic blood flow distal to a high grade coronary artery stenosis. In addition to providing flow to the distal vessel, collateral development and arterial remodeling might be induced by VSTENT™ implantation.

Methods: In 11 patients (age  $60 \pm 4$  y) undergoing multivessel coronary artery bypass surgery a ventricle to coronary artery bypass was established using a ePTFE-membrane covered VSTENT™ between the left ventricle and an obtuse marginal branch (n=6), a ramus intermedius (n=1) or a diagonal branch (n=4) distal to a high grade coronary artery stenosis.

Results: Epicardial coronary flow (flow wire) measurements including determination of adenosine induced flow reserve and dobutamine stress testing were performed before and after VSTENT™ implantation. Flow wire measurements assessed before and 7 days after VSTENT™ implantation revealed a change of coronary flow pattern from diastolic to predominantly systolic flow (systolic/diastolic flow ratio:  $0.3 \pm 0.1$  to  $1.6 \pm 0.3$ ,  $p < 0.01$ ). During dobutamine stress testing no regional wall motion abnormalities were detected in the area supplied by the VSTENT™ and none of the patients developed clinical or electrocardiographic signs of ischemia. 6 months angiographic follow up will be available at presentation. Conclusions: Surgical VSTENT™ implantation providing a ventricle to coronary artery bypass 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.