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ORIGINAL ARTICLE

Percutaneous coronary intervention of unprotected left main disease: Five-year outcome of a single-center registry

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KEYWORDS
Unprotected left main;
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Abstract
Introduction and Aims: Percutaneous coronary intervention (PCI) is increasingly used as a treatment option for unprotected left main coronary artery (ULMCA) lesions. We aimed to evaluate the long-term outcome of patients undergoing ULMCA PCI.
Methods and Results: We retrospectively analyzed 95 consecutive patients (median EuroSCORE I 2.9 [IQR 1.4;6.1]) who underwent ULMCA PCI between 1999 and 2006, included in a single-center prospective registry. The primary outcome was major adverse cardiovascular events (MACE) defined as all-cause death, myocardial infarction (MI) and target lesion revascularization (TLR) at five years. Forty patients (42.1%) were treated in the setting of acute coronary syndrome and 81 patients (85%) had at least one additional significant lesion (SYNTAX score 24.2±11.8). Single ULMCA PCI was performed in 33% (81.1% with drug-eluting stents) and complete functional revascularization was achieved in 79% of the patients. During the observation period, 20 patients died (21.1%), 6 (6.3%) had MI and 11 (11.6%) had TLR (total combined MACE 28.4%). Independent predictors of MACE were previous MI (HR 2.9 95% CI 1.23–6.92; p=0.015), hypertension (HR 5.7 95% CI 1.86–17.47; p=0.002) and the EuroSCORE I (HR 1.1 95% CI 1.03–1.12; p=0.001). Drug-eluting stent implantation was associated with a significantly lower MACE rate, even after propensity score adjustment (AUC=0.84; HR [corrected] 0.1; 95% CI 0.04–0.26; p<0.001).
Conclusions: Unprotected left main percutaneous coronary intervention, particularly using drug-eluting stents, can be considered a valid alternative to coronary artery bypass grafting, especially in high-risk surgical patients and with favorable anatomic features.

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PALAVRAS-CHAVE
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Stents revestidos por fármaco

Intervenção coronária percutânea do tronco comum não protegido: resultados aos cinco anos de um registo de centro único

Resumo
Introdução e objetivo: A intervenção coronária percutânea (ICP) tem sido cada vez mais adotada como uma opção terapêutica para as lesões do tronco comum não protegido (TCNP). O objetivo deste trabalho foi avaliar o prognóstico a longo-prazo de doentes submetidos a ICP do TCNP.
Métodos e resultados: Análise retrospetiva de 95 doentes consecutivos (mediana do EuroSCORE-I 2.9 [IQR 1.4;6.1]) submetidos a ICP do TCNP entre 1999 e 2006, incluídos num registo prospetivo de centro único. O objetivo primário estudado foi a ocorrência combinada de morte de qualquer causa, enfarte agudo do miocárdio (EAM) e revascularização da lesão alvo (TLR) aos cinco anos de seguimento. Quarenta doentes (42,1%) foram tratados no contexto de uma síndroma coronária aguda e 81 doentes (85%) tinham pelo menos outra lesão significativa adicional (SYNTAX *score* 24,2±11,8). Angioplastia isolada do tronco comum foi efetuada em 33% dos casos (81,1% com *stents* revestidos por fármaco) e a revascularização foi funcionalmente completa em 79%. Durante o período estudado, 20 doentes morreram (21,1%), 6 (6,3%) tiveram EAM e 11 (11,6%) TLR (MACE total combinado 28,4%). Os preditores independentes de MACE foram: antecedentes de EAM (HR 2,9 IC95% 1,23-6,92; p=0,015), hipertensão arterial (HR 5,7 IC95% 1,86-17,47; p=0,002) e o EuroSCORE-I (HR 1,1 IC95% 1,03-1,12; p=0,001). A implantação de *stent* revestido por fármaco associou-se significativamente a menor taxa de MACE, mesmo após ajuste por *propensity score* (AUC=0,84): HR [corrigido] 0,1; IC95% 0,04-0,26; p < 0,001).
Conclusões: A intervenção coronária percutânea em lesões do tronco comum não protegido, utilizando principalmente *stents* revestidos por fármaco, pode ser considerada uma alternativa válida à revascularização cirúrgica, em especial em doentes de elevado risco cirúrgico e com características angiográficas favoráveis.

Introduction

Coronary artery bypass grafting (CABG) is still the standard recommended treatment for unprotected left main coronary artery (ULMCA) lesions.[1] Technical improvements in percutaneous intervention (PCI) and stent technology mean that it is increasingly considered as a treatment option for this high-risk patient subset.[2] Several registries and randomized clinical trials have shown that percutaneous revascularization of ULMCA lesions is safe and effective, yielding results that are comparable to CABG, particularly when hard clinical endpoints are considered. In the PRECOMBAT study, PCI with sirolimus-eluting stents was non-inferior to CABG with respect to the primary composite endpoint of major adverse cardiac or cerebrovascular events at one year.[3] In the subset of 705 patients with left main (LM) lesions (13% isolated LM) included in the randomized SYNTAX trial, all-cause death, cardiac death, myocardial infarction (MI) and the composite endpoint of all-cause death, stroke or MI were similar with both treatment strategies (PCI with first-generation paclitaxel-eluting stents vs. CABG) at four years, despite a significantly higher rate of repeat revascularization in the PCI group (23.5% vs. 14.6%; p=0.003), and a higher rate of stroke in patients randomized to CABG (14.6% vs. 4.3%; p=0.03). The overall results of the trial show that the majority of events occurred in patients with higher SYNTAX scores.[4] Likewise, in the five-year outcome analysis of the MAIN-COMPARE registry, stenting resulted in similar rates of death and of the composite endpoint of death, Q-wave MI or stroke, but higher rates of target vessel revascularization were observed compared to CABG.[5] The evidence thus suggests that PCI is a reasonable treatment alternative for this subset of coronary artery disease patients, although at the cost of a higher rate of target lesion revascularization.

Our aim was to evaluate and report the long-term (five-year) outcome of patients undergoing PCI of ULMCA disease in a high-volume PCI center.

Methods

Study population

Between January 1999 and December 2006, 8832 PCI procedures were undertaken at our institution. Of these, 95 (∼1%) had significant ULMCA luminal stenosis (defined as ≥50% diameter stenosis in the absence of patent grafts to the left anterior descending or circumflex artery) that was treated with stent implantation. In our institution all patients with ULMCA are candidates for surgical revascularization, except for emergent revascularization indicated by the clinical setting, refusal by the surgical team due to unacceptable surgical risk or patient preference. All patients were informed of the procedural risks and alternative treatments methods and subsequently provided written informed consent, unless unable to do so due to their clinical status.

Patients were included in the single-center Angiography and Coronary Revascularization Registry of Santa Cruz Hospital (ACROSS Registry), in which demographic, clinical, angiographic and procedure-related variables are