Rev Port Cardiol. 2013;32(7–8):593–599

Revista Portuguesa de
Cardiologia
Portuguese Journal of Cardiology
www.revportcardiol.org

ORIGINAL ARTICLE

Techniques and material used in the percutaneous treatment of chronic coronary occlusions. Data from the CIBELES study

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Received 3 October 2012; accepted 1 November 2012
Available online 27 July 2013

KEYWORDS
Coronary stents;
Coronary angioplasty;
Chronic occlusion;
Coronary artery disease

Abstract
Introduction: In recent years, various specific techniques and materials have been developed for the treatment of coronary chronic total occlusions (CTO).
Objective: To evaluate the current situation in the treatment of CTO (techniques and material) in our setting.
Methods: We evaluated data on techniques and material used in the CIBELES (ChronIc coronary occlusion treated By EveroLimus Eluting Stent) trial, a randomized comparison of sirolimus- and everolimus-eluting stents in 207 patients with CTO in 13 centers in Spain and Portugal.
Results: A radial approach was used in 23% of patients, and retrograde techniques were used in only 5%. A high number of balloons were used (2.2 ± 0.9 per patient). Microcatheters were

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used in 33% of patients, and post-dilatation balloons in only 25%. The mean number of stents implanted per patient was 2.1 ± 1.0, with a mean total stent length of 49 ± 24 mm. Other devices and techniques used were: Tornus penetration catheter in 4% of patients, rotational atherectomy in 2%, and cutting balloon in 1%. Intracoronary ultrasound was used in only 6% of patients. In 34% of cases, operators used guidewires that were not specifically for CTO. Considerable variability between centers was detected in the use of different techniques, the highest and lowest variability being observed in the use of intracoronary ultrasound and the use of CTO guidewires, respectively.
Conclusions: In the CIBELES trial, techniques and devices specifically designed for the treatment of CTO were used in a relatively low proportion of patients. Considerable variability between centers was detected.

PALAVRAS-CHAVE
Stents coronários;
Angioplastia coronária;
Oclusões crónicas;
Doença coronária

Técnicas e material usado no tratamento percutâneo de oclusões coronárias crónicas. Dados do estudo CIBELES

Resumo
Introdução: Durante os últimos anos foram desenvolvidos materiais e técnicas específicos para o tratamento de oclusões totais crónicas (OTC).
Objetivo: Avaliar a situação atual no tratamento de OTC (técnicas e material) na nossa realidade.
Métodos: Avaliámos os dados relacionados com as técnicas e material usados no estudo CIBELES (ChronIc coronary occlusion treated By EveroLimus Eluting Stent) que comparou de forma aleatororizada *stents* eluidores de sirolimus e everolimus em 207 doentes com OTC em 13 centros de Espanha e Portugal.
Resultados: A abordagem radial foi usada em 23% dos doentes e as técnicas retrógradas foram usadas em apenas 5%. Foi usado um elevado número de balões (2,2 ± 0,9 por doente). Microcatéteres foram usados em 33% e balões de pós-dilatação apenas em 25% dos doentes. O número médio de *stents* implantados por doente foi de 2,1 ± 1,0, com um comprimento total médio de 49 ± 24 mm. Outro material foi: tornus 4%, aterectomia rotacional 2% e *cutting balloon* em 1% dos doentes. Ecografia intra-coronária foi usada em apenas 6% dos doentes. Em 34% dos casos os operadores usaram fios-guia que não eram específicos de OTC. Uma alta variabilidade entre centros foi detetada no uso de diferentes técnicas, sendo a variabilidade observada mais alta e mais baixa no uso de ecografia intra-coronária e no uso de guias de OTC, respetivamente.
Conclusões: No estudo CIBELES, técnicas e material especificamente desenvolvidos para o tratamento de OTC foram usados numa proporção relativamente baixa dos doentes. Foi detetada uma alta variabilidade entre centros.

Introduction

Coronary chronic total occlusions (CTO) still constitute one of the most difficult challenges for interventional cardiologists, due mainly to difficulty in achieving adequate vessel recanalization, but also to high rates of restenosis, reocclusion, and new revascularization procedures in cases with an initial successful result.[1–3] For these reasons, in recent years various specific devices and techniques have been developed and guidelines have been established for appropriate treatment of these lesions.[4–6]

Our objective was to assess the current situation regarding treatment of CTO in terms of devices and techniques used, based on the results of the CIBELES (ChronIc coronary occlusion treated By EveroLimus Eluting Stent) trial, a randomized comparison of sirolimus- and everolimus-eluting coronary stents in 207 patients with CTO.[7,8]

Methods

Study population

The CIBELES trial (Clinicaltrials.gov identifier NCT00793221) included 207 patients with a coronary CTO with an estimated duration of occlusion >2 weeks.[7,8] The patients were randomly allocated to everolimus-eluting (Xience V, Abbott Vascular) or sirolimus-eluting (Cypher, Cordis, Johnson & Johnson) coronary stents. In the latest guidelines on the treatment of CTO, CTO was defined as a total occlusion with an estimated duration of occlusion >3 months. However, in the CIBELES study an estimated duration of occlusion >2 weeks was used, for two reasons. First, most studies comparing different strategies to reduce restenosis in CTO included patients with an estimated duration of occlusion >2 weeks. Second, in the CIBELES study, two different types