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ORIGINAL ARTICLE

The impact of direct access to primary angioplasty on reducing the mortality associated with anterior ST-segment elevation myocardial infarction: The experience of the Algarve region of Portugal☆

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KEYWORDS
Anterior ST-segment elevation myocardial infarction;
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Abstract
Introduction: There are few published data on mortality in anterior ST-segment elevation myocardial infarction (STEMI) in Portugal, particularly in centers with direct access to primary angioplasty. We present the experience of a center with direct access to primary angioplasty in the management of patients admitted with anterior STEMI.
Methods: We performed a retrospective study of 120 patients admitted with anterior STEMI in 2008 to Faro Hospital (Algarve region, Portugal).
Results: Significant coronary artery stenosis was found in 99 patients (82.5%). These patients were predominantly male (79%), and had a mean age of 63 years. Primary angioplasty was performed in the majority of patients within 6 hours of symptom onset and median ECG-to-balloon time was 89 minutes. Primary angioplasty was successful in 98% of patients and complete revascularization was achieved in 83%. Radial access was used in 82% of cases. In-hospital and 30-day mortality was 3%.
Conclusion: Direct access to primary angioplasty was associated with low mortality in patients admitted with anterior STEMI.

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PALAVRAS-CHAVE
Enfarte agudo do miocárdio com supradesnivelamento do segmento ST;
Enfarte anterior;
Mortalidade;
Via verde;
Angioplastia primária

Impacto da via verde coronária e da angioplastia primária na redução da mortalidade associada ao enfarte com elevação do segmento ST anterior. A experiência algarvia

Resumo
Introdução: Existem muito poucos dados em Portugal sobre a mortalidade do enfarte agudo do miocárdio com supradesnivelamento do segmento ST (EAMCST) anterior, particularmente em centros com via verde coronária (VVC) e angioplastia primária. O objetivo deste estudo é apresentar os resultados de um centro com VVC e angioplastia primária no tratamento de doentes internados por EAMCST anterior.
Métodos: Estudo retrospetivo dos 120 doentes admitidos por EAMCST de localização anterior no ano de 2008 no centro hospitalar de Faro.
Resultados: Foi encontrada doença coronária significativa em 99 doentes (82,5%). Estes doentes eram predominantemente do sexo masculino (79%) e tinham uma idade média de 63 anos. A angioplastia primária foi realizada na maioria dos doentes nas primeiras 6 h após o início dos sintomas, sendo que a mediana do tempo ECG-balão foi de 89 min. A taxa de sucesso da angioplastia primária foi de 98%, sendo que a revascularização foi completa em 83% dos casos. O cateterismo cardíaco foi realizado por via radial em 82% dos doentes. A taxa de mortalidade intra-hospitalar e aos 30 dias foi de 3%.
Conclusão: A implementação da VVC com acesso direto a angioplastia primária associou-se a uma baixa taxa de mortalidade dos doentes admitidos por EAMCST anterior.

Introduction

Primary angioplasty has been shown to be superior to fibrinolytic therapy in ST-elevation myocardial infarction (STEMI) and is indicated as first-line treatment in the guidelines.[1,2]

The shorter the time interval between symptom onset (or first medical contact) and angioplasty, the greater its benefit. In order to minimize this interval, a coronary fast-track system (*Via Verde Coronária*) has been established in the Algarve region of Portugal to provide rapid and efficient transport between the pre-hospital setting and a hospital able to perform primary angioplasty or to transfer a patient from one hospital to another with the necessary facilities. The time from first medical contact to primary angioplasty (medical contact-to-balloon time) should be less than 120 minutes, except in patients presenting with extensive infarction within two hours of symptom onset and with a low bleeding risk, when it should be less than 90 minutes.[1]

The Portuguese region of the Algarve has a resident population of around 500 000, which can increase threefold due to tourism, especially in the summer. Faro Hospital is the only hospital in the region able to provide 24-hour primary angioplasty, and has a coronary care unit (CCU) with the logistic and technical facilities to treat STEMI patients. It is part of a referral network, the coronary fast-track system, which is designed to ensure that all STEMI patients originating from the National Institute for Medical Emergencies (INEM) system or health centers, basic emergency departments or Hospital do Barlavento Algarvio (which does not have primary angioplasty capability) are transferred immediately to Faro Hospital for primary angioplasty.

INEM, basic emergency departments and Hospital do Barlavento Algarvio have 24-hour facilities to perform 12-lead ECG and transmit the data to the CCU in Faro Hospital; the coronary fast-track system is activated by a telephone call from the cardiologist on duty.

The coronary fast-track system began operating in the Algarve in 2002, since when it has been the means of referral for a growing number of STEMI patients. Primary angioplasty has been available in Faro Hospital since 2003 and a large number of procedures are performed every year.

With the exception of the Algarve region, fewer than 6% of STEMI patients in Portugal treated by primary angioplasty are referred directly by local fast-track systems.

In patients with anterior STEMI it is particularly important to select and implement the appropriate treatment as rapidly as possible in order to reduce their high mortality. Figures in the literature vary, but 30-day mortality is over 6%.[4–6] In Portugal no outcome data have been published for anterior STEMI in centers with primary angioplasty facilities linked to a coronary fast-track system.

The aim of this study was to analyze and present the results of a center with direct access to primary angioplasty and with several years' experience of a coronary fast-track system in the management of patients admitted with anterior STEMI in 2008.

Methods

Study population

The study included 120 patients admitted with anterior STEMI to Faro Hospital in 2008.

The diagnosis of anterior STEMI was based on 12-lead ECG, using the criteria of ST-segment elevation $\geq$0.1 mV in DI and aVL or $\geq$0.2 mV in two or more contiguous precordial leads from V1 to V5. All patients who met the ECG criteria and presented sustained chest pain of less than 12 hours'