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ORIGINAL ARTICLE

Do prices reflect the costs of cardiac surgery in the elderly?☆

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KEYWORDS
Costs;
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Abstract
Introduction and Objectives: Payment for cardiac surgery in Portugal is based on a contract agreement between hospitals and the health ministry. Our aim was to compare the prices paid according to this contract agreement with calculated costs in a population of patients aged ≥65 years undergoing cardiac surgery in one hospital department.
Methods: Data on 250 patients operated between September 2011 and September 2012 were prospectively collected. The procedures studied were coronary artery bypass graft surgery (CABG) (n=67), valve surgery (n=156) and combined CABG and valve surgery (n=27). Costs were calculated by two methods: micro-costing when feasible and mean length of stay otherwise. Price information was provided by the hospital administration and calculated using the hospital's mean case-mix.
Results: Thirty-day mortality was 3.2%. Mean EuroSCORE I was 5.97 (standard deviation [SD] 4.5%), significantly lower for CABG (p<0.01). Mean intensive care unit stay was 3.27 days (SD 4.7) and mean hospital stay was 9.92 days (SD 6.30), both significantly shorter for CABG. Calculated costs for CABG were €6539.17 (SD 3990.26), for valve surgery €8289.72 (SD 3319.93) and for combined CABG and valve surgery €11 498.24 (SD 10 470.57). The payment for each patient was €4732.38 in 2011 and €4678.66 in 2012 based on the case-mix index of the hospital group, which was 2.06 in 2011 and 2.21 in 2012; however, the case-mix in our sample was 6.48 in 2011 and 6.26 in 2012.
Conclusion: The price paid for each patient was lower than the calculated costs. Prices would be higher than costs if the case-mix of the sample had been used. Costs were significantly lower for CABG.

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PALAVRAS-CHAVE
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Preço;
Case mix

Serão preço e custo coincidentes na cirurgia cardíaca do idoso?

Resumo
Introdução: O pagamento da cirurgia cardíaca é feito com base num contrato entre os hospitais e o ministério da Saúde. Comparámos o preço com o custo apurado num serviço específico, nos doentes com idade igual ou superior a 65 anos.
Material e métodos: Estudo prospetivo entre setembro 2011 e setembro 2012 em 250 doentes submetidos a cirurgia de revascularização coronária (n=67), valvular (n=156) e coronária associada a valvular (n=27). Os custos foram apurados sempre que possível pelo método de microcusteio em alternativa pelo valor médio. O preço por doente foi facultado pela administração hospitalar, calculado usando o *case mix* médio do centro hospitalar.
Resultados: Mortalidade aos 30 dias foi de 3,2%. *Euroscore I* médio foi 5,97 desvio padrão (DP) 4,50% significativamente inferior na cirurgia coronária. Tempo médio de UCI (3,27 DP 4,7), internamento total (9,92 DP 6,30) dias, ambos significativamente inferiores na cirurgia coronária isolada. Os custos apurados para cirurgia coronária foram (6539,17 DP 3990,26 €), valvulares (8289,72 DP 3319,93 €), valvulares com coronária associada (11 498,24 DP 10 470,57 €). Cada doente foi pago a 4732,38 em 2011 e a 4678,66 em 2012. usando o *case mix* do centro hospitalar que foi em 2011 (2,06) e em 2012 (2,17). O *case mix* da amostra foi 6,48 em 2011 e 6,26 em 2012.
Conclusão: O preço pago por doente foi inferior ao custo apurado. Caso tivesse sido usado o *case mix* da amostra, o preço teria sido superior ao custo. A cirurgia coronária é significativamente mais barata que a valvular.

Introduction

The Portuguese National Health Service (NHS) was established in 1979, funded by the State budget, and hospitals were paid on the basis of historical costs. In the late 1980s the first steps were taken to assess the production of hospital services with the adoption of the system of classifying patients by diagnosis-related groups (DRGs), and in the early 1990s hospital funding moved to a contract system based on DRGs, but continuing to be allocated a budget rather than payment per episode.[1] There are two main contract systems: retrospective, paid on the basis of previous expenditure; and prospective, based on the type, volume and price of the services provided, which can be calculated in advance.[2]

In recent years there have been attempts, not always successful, to reduce health care costs. New prospective funding models have been adopted in the European Union aimed at making management more accountable for the results obtained.[3] The amount paid for services is established in advance, which encourages savings but introduces an element of uncertainty into the funding of health organizations.[4] Payment for health care services provided by public hospitals to NHS patients is currently based on previously established contract agreements, but it is questionable whether payments made for patients for particular services, especially cardiac surgery, match the real costs at a state of efficiency.[5]

Patients may be overfunded or underfunded when different specialties are considered separately. It is thus important to analyze the differences between what cardiac surgery actually costs the NHS and the corresponding price that is established (perhaps artificially) in the hospital's funding model.

Objectives

To compare the price of cardiac surgery according to the contract agreement with calculated costs in one hospital department in a specific patient group – elderly patients (aged ≥65 years).

Methods

We performed a prospective analysis of costs in patients undergoing cardiac surgery in a high-volume surgical center between September 2011 and September 2012. Patients aged ≥65 years who underwent elective coronary bypass graft surgery (CABG), valve surgery and combined CABG and valve surgery were included. Urgent procedures and reoperations were excluded. Subsequently, two patients who underwent a repeat procedure within a month were excluded despite initially fulfilling the inclusion criteria, as were another seven who were transferred to other hospitals, making it impossible to calculate costs.

The study was approved by the hospital's ethics committee and all included patients gave their written informed consent.

Costs can be calculated by different methods with different degrees of precision. The most precise method is micro-costing, which produces a unit cost, while the least precise is the mean daily cost of hospitalization. Analytical accounting uses mean daily cost for all categories of costs.[6]