



Original article

Cost-effectiveness of surgical treatment for hip fractures among the elderly in Brazil[☆]



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ABSTRACT

Objectives: To estimate the cost per quality-adjusted life-year (QALY) focusing on the length of time between trauma and surgery.

Methods: A retrospective cohort with systematic sampling was conducted among all the patients who were admitted to the study hospital through the Brazilian National Health System (SUS) over a three-year period. Two treatment strategies were compared: early treatment, if the patient was operated up to the fourth day; and late treatment, if this was done after the fourth day. The cost was the direct medical cost from the point of view of SUS, which was gathered from the management system, from the SUS table of procedures, medications and implant material costs (SIGTAP), to account for the costs associated with the hospital, medical fees and implants used. The outcome of usefulness was measured indirectly by means of EuroQOL-5D, which is an instrument used worldwide, and these measurements were transformed into usefulness by means of the standard rules of the Regional Planning and Development Center of Minas Gerais (CEDEPLAR) of 2013.

Results: The sample included 110 patients: 27 in the early group and 83 in the late group. The confounding variables of age, gender, anesthetic risk (ASA), fracture type and surgery type were controlled for. The samples were shown to be homogenous with regard to these variables. The cost per QALY of the early strategy was R\$ 5,129.42 and the cost of the late strategy was R\$ 8,444.50.

Conclusion: The early strategy was highly favorable in relation to the late strategy in this study.

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Custo-efetividade do tratamento cirúrgico da fratura do quadril em idosos no Brasil

R E S U M O

Palavras-chave:

Análise Econômica em Saúde

Fratura do quadril

Idoso

Objetivos: estimar o custo por ano de vida ajustado por qualidade (QALY) com foco no tempo entre o trauma e a cirurgia.

Métodos: foi feita uma coorte retrospectiva com amostra sistemática com todos os pacientes internados no hospital do estudo pelo Sistema Único de Saúde (SUS) durante três anos. Compararam-se duas estratégias de tratamento, uma precoce, se o paciente fosse operado até o quarto dia, e outra tardia, se após o quarto dia. O custo foi o direto médico do ponto de vista do SUS, colhido diretamente do Sistema de Gerenciamento da Tabela de Procedimentos, Medicamentos e Custos de Materiais de Implantes (OPM) do SUS (Sigtap), para contagem dos custos associados ao hospital, aos honorários médicos e aos implantes usados, e o desfecho utilidade foi medido indiretamente por meio do EuroQOL-5D, instrumento mundialmente usado e transformado em utilidade pela normativa do Centro de Desenvolvimento e Planejamento Regional de Minas Gerais (Cedeplar) de 2013.

Resultados: a amostra contou com 110 pacientes, 27 no grupo precoce e 83 no tardio. Variáveis confundidoras foram controladas, idade, gênero, risco anestésico (ASA) e tipo de fratura e de cirurgia. As amostras se revelaram homogêneas quanto a essas variáveis. O custo por QALY da estratégia precoce foi de R\$ 5.129,42 e da estratégia tardia, de R\$ 8.444,50.

Conclusão: a estratégia precoce demonstra dominância em relação à tardia neste estudo.

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Introduction

Fractures of the proximal femur have extremely serious repercussions among elderly patients: high morbidity and mortality, high rates of postoperative incapacity and higher costs both for the family and for society, with poor results from the treatment. They are considered to be one of the biggest public health problems worldwide.^{1,2}

In the United Kingdom, the guidelines recommend that the ideal interval between injury and surgery is 24 h, except in cases in which the patient's condition necessitate more time for clinical improvement.³ Some authors have taken the view that adherence to this ideal time constitutes a quality criterion for the service in question.⁴

The time between injury and surgery is lengthy in Brazil, and this may cause worsening of the clinical results and of quality of life, as well as increasing the costs in a health-care system that is under development, like the Brazilian system.^{5–7}

The direct medical costs relating to treatment of hip fractures among elderly people have been studied in Brazil since 2001, and they vary significantly, particularly because of the differences in data-gathering or survey methodologies, from R\$ 1,700.00⁸ to R\$ 24,000.00.⁹

Effectiveness can be measured as quality of life, such that the result is named “usefulness”. This is a measurement method in which a cardinal number ranging from zero to one represents a possible extract of the quality of life. Death is represented as “zero” and perfect quality of life is represented as “one”. This outcome can be gathered directly or indirectly by means of questionnaires.

Indirect data-gathering methods are easier and cheaper.¹⁰ Use of these instruments depends on the transformation norms that ideally should be created among the local target population.¹¹

Independent of whether the investment is of public or private type, healthcare expenditure has been increasing around the world, either through advances in hard technology or through the sum of technologies, which is a characteristic of the healthcare sector. This makes allocative efficiency and treatment efficiency even more important.¹² This knowledge is something that orthopedists should have an interest in.

Economic analysis on “hip fractures among the elderly” constitutes an effort to comprehend the problem better, along with its details, and enable adequate planning to deal with it. Its main characteristic is the collective point of view instead of the individual point of view, which better translates the dimension of the question in our eyes and in those of health-care managers.

The aim of this study was to analyze the relationship between cost, from the perspective of the Brazilian National Health System (SUS), and the effectiveness of surgical treatment for hip fractures among elderly people in Brazil, focusing on the time that elapses between injury and surgery.

Methods

A retrospective cohort was studied, formed by a systematic sample of all patients with hip fractures who were admitted to the hospital of this study between January 1, 2009, and December 31, 2011. An economic analysis on healthcare was conducted from the perspective of the payer, i.e. SUS. It took

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