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REVIEW ARTICLE

Is there any benefit in associating neuraxial anesthesia to general anesthesia for coronary artery bypass graft surgery?☆



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KEYWORDS

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Systematic review;
Mortality;
Evidence

Abstract

Background and objectives: The use of neuraxial anesthesia in cardiac surgery is recent, but the hemodynamic effects of local anesthetics and anticoagulation can result in risk to patients. **Objective:** To review the benefits of neuraxial anesthesia in cardiac surgery for CABG through a systematic review of systematic reviews.

Content: The search was performed in Pubmed (January 1966 to December 2012), Embase (1974 to December 2012), The Cochrane Library (volume 10, 2012) and Lilacs (1982 to December 2012) databases, in search of articles of systematic reviews. The following variables: mortality, myocardial infarction, stroke, in-hospital length of stay, arrhythmias and epidural hematoma were analyzed.

Conclusions: The use of neuraxial anesthesia in cardiac surgery remains controversial. The greatest benefit found by this review was the possibility of reducing postoperative arrhythmias, but this result was contradictory among the identified findings. The results of findings regarding mortality, myocardial infarction, stroke and in-hospital length of stay did not show greater efficacy of neuraxial anesthesia.

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PALAVRAS-CHAVE

Anestesia geral;
Anestesia subaracnoidea;
Anestesia epidural torácica;
Revisão sistemática;
Mortalidade;
Evidências

Existe algum benefício em associar a anestesia neuroaxial à anestesia geral para revascularização miocárdica?**Resumo**

Justificativa e objetivos: O uso da anestesia neuroaxial em cirurgia cardíaca é recente, porém os efeitos hemodinâmicos dos anestésicos locais e a anticoagulação podem trazer riscos aos pacientes.

Objetivo: Revisar os benefícios da anestesia neuroaxial em cirurgia cardíaca para revascularização miocárdica por meio de uma revisão sistemática de revisões sistemáticas.

Conteúdo: Foi feita pesquisa nas bases de dados Pubmed (de janeiro de 1966 a dezembro de 2012), Embase (1974 a dezembro 2012), The Cochrane Library (volume 10, 2012) e Lilacs (1982 a dezembro de 2012) em busca de artigos de revisões sistemáticas. Foram analisadas as seguintes variáveis: mortalidade, infarto do miocárdio, acidente vascular cerebral, tempo de internação hospitalar, arritmias e hematoma peridural.

Conclusões: O uso da anestesia neuroaxial para revascularização miocárdica permanece controverso. O maior benefício encontrado por meio desta revisão foi a possibilidade de redução das arritmias pós-operatórias, porém esse resultado foi contraditório entre as evidências identificadas. Os resultados das evidências encontradas referentes à mortalidade, ao infarto do miocárdio, ao acidente vascular cerebral e ao tempo de internação hospitalar não mostraram maior efetividade da anestesia neuroaxial.

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Introduction

The technological and pharmacological advances in anesthesia and surgery over the past decades, as well as better working conditions in intensive care units decreased complications in patients undergoing cardiac surgery.^{1,2}

Neuraxial anesthesia (NA) causes sympathectomy and can improve the coronary perfusion and balance between supply and demand of myocardial oxygen and reduce the incidence of postoperative arrhythmias and perioperative heart attack.³⁻⁵ The combination of general anesthesia (GA) and NA may bring benefits to patients undergoing cardiac surgery.^{3,4}

The systematic use of anticoagulation in cardiac surgery with cardiopulmonary bypass increases the risk of hematoma and spinal cord compression when anesthesia is performed on spinal cord or nerves.⁶ The major problem with neuraxial administration of local anesthetics is systemic hypotension, which may be accompanied by decreases in coronary blood flow, as the safe level of hypotension in patients undergoing cardiac surgery is not known.⁷ If we take into account the physiological effects of local anesthetic neuraxial administration and NA management in patients with anticoagulation, it is noticed that the use of NA, i.e., thoracic epidural anesthesia (TEA) and spinal anesthesia (SA), in cardiac surgery remains controversial.^{6,7} It is necessary to analyze the existing data in the literature to identify benefits of the NA administration in cardiac surgery for coronary artery bypass grafting (CABG).

The aim of this article was to review the NA benefits in cardiac surgery for CABG through a systematic review of systematic reviews.

Methods

The strategy to accomplish this systematic review followed the Cochrane Collaboration guidelines.⁸ This is a systematic review of systematic reviews. The items for systematic reviews publications of Prisma statement were followed to report the results of this review.⁹

Inclusion criteria were systematic review articles of randomized controlled trials (RCTs) evaluating the use of neuraxial anesthesia in cardiac surgery for CABG. There was no language restriction. Other types of research articles were excluded from the analysis.

The identification of systematic review articles was performed by searching in electronic databases. The sources used were: Medline via PubMed (January 1966 to December 2012), Embase (1974 to December 2012), The Cochrane Library (volume 10, 2012), and Lilacs (1982 to December 2012). The search strategy used for PubMed is shown in [Table 1](#). The search strategy for Embase was: systematic review/exp and general anesthesia/exp or spinal anesthesia/exp or epidural anesthesia/exp and cardiac surgery/exp and embase/lim. 'Anesthesia' and 'cardiac surgery' terms were used for Lilacs and Cochrane Collaboration.

The published articles identified by the search strategy were selected by analysis of titles and abstracts, or both. This selection was independently made by two reviewers (Barbosa F.T. and Castro A.A.) and followed by meetings to resolve disagreements between the authors. The published systematic review articles that met the inclusion criteria were fully reviewed.

The Overview Quality Assessment Questionnaire (OQAQ) was used to assess the quality of systematic reviews with

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