Rev Bras Anestesiol. 2016;66(4):335–340

Sociedade Brasileira de Anestesiologia

REVISTA BRASILEIRA DE ANESTESIOLOGIA

Publicação Oficial da Sociedade Brasileira de Anestesiologia
www.sba.com.br

SCIENTIFIC ARTICLE

Association of clonidine and ropivacaine in brachial plexus block for shoulder arthroscopy

Raphael Faria-Silva*, Daniel Câmara de Rezende, Juarez Mundim Ribeiro, Telmo Heleno Gomes, Braulio Antônio Maciel Faria Mota Oliveira, Fábio Maciel R. Pereira, Ildeu Afonso de Almeida Filho, Antônio Enéas Rangel de Carvalho Junior

Hospital Felício Rocho, Belo Horizonte, MG, Brazil

Received 4 January 2013; accepted 10 June 2013
Available online 28 November 2014

KEYWORDS
Local anesthetics;
Clonidine;
Arthroscopy;
Postoperative pain

Abstract
Background and objectives: Arthroscopy for shoulder disorders is associated with severe and difficult to control pain, postoperatively. The addition of clonidine to local anesthetics for peripheral nerve block has become increasingly common, thanks to the potential ability of this drug to reduce the mass of local anesthetic required and to prolonging analgesia postoperatively. The present study aimed to evaluate the success of brachial plexus block for arthroscopic rotator cuff surgery using local anesthetic with or without clonidine.
Method: 53 patients of both genders, between 18 and 70 years old, American Society of Anesthesiologists I or II, who were scheduled to undergo arthroscopic shoulder surgery were selected. Patients were then randomized into two groups. The verbal numerical pain scale and the presence of motor block were obtained in the post-anesthetic recovery room and 6, 12, 18 and 24 h postoperatively.
Results: The association of clonidine (0.15 mg) to a solution of 0.33% ropivacaine (30 mL) in brachial plexus block for shoulder arthroscopy has not diminished the visual numeric pain scale values, nor the need for opioid rescue postoperatively. There was a lower incidence of nausea/vomiting postoperatively and a significant motor block time prolongation in the group of patients who received clonidine as adjuvant.
Conclusions: The use of brachial plexus block with local anesthetic for analgesic postoperative control is well established in the literature. The addition of clonidine in the dose proposed for prolongation of the analgesic effect and reduction of opioid rescue proved unhelpful.

* Corresponding author.
E-mail: dr.raphael.faria@gmail.com (R. Faria-Silva).

http://dx.doi.org/10.1016/j.bjane.2013.06.022

PALAVRAS-CHAVE
Anestésicos locais;
Clonidina;
Artroscopia;
Dor pós-operatória

Associação de clonidina e ropivacaína no bloqueio de plexo braquial para artroscopia de ombro

Resumo
Justificativa e objetivos: A artroscopia para afecções do ombro associa-se a dor de forte intensidade no pós-operatório, de difícil manejo. A adição de clonidina ao anestésico local em bloqueios periféricos tornou-se progressivamente maior graças à potencial habilidade dessa droga de reduzir a massa de anestésicos locais necessários e prolongar a analgesia no pós-operatório. O presente estudo teve como objetivo avaliar o sucesso do bloqueio de plexo braquial para a cirurgia artroscópica de manguito rotador com o uso de anestésico local associado ou não à clonidina.
Método: Foram selecionados 53 pacientes de ambos os sexos, entre 18 e 70 anos, ASA I ou II, que seriam submetidos à cirurgia de ombro por artroscopia. Os pacientes foram então randomizados em dois grupos. A escala numérica verbal de dor e a presença de bloqueio motor eram obtidas na sala de recuperação pós-anestésica (SRPA) com seis, 12, 18 e 24 horas de pós-operatório.
Resultados: A associação de clonidina (0,15 mg) à solução de ropivacaína 0,33% (30 mL) no bloqueio de plexo braquial para artroscopia de ombro não diminuiu os valores da escala visual numérica de dor, nem a necessidade de resgate com opioides no pós-operatório. Houve uma menor incidência de náuseas e vômitos no pós-operatório (NVPO) e aumento considerável do tempo de bloqueio motor no grupo de pacientes que recebeu clonidina como adjuvante.
Conclusões: O uso do bloqueio de plexo braquial com anestésico local para controle analgésico pós-operatório está consolidado na literatura. A adição de clonidina na dose proposta para prolongamento do efeito analgésico e redução de resgate com opioides mostrou-se pouco útil.

Introduction

Brachial plexus blocks are indicated for anesthesia and analgesia in endoscopic procedures of the upper limb, shoulder, and clavicle. This anesthetic technique enables surgical procedures with short hospital stay (no overnight stay) or anesthesia for procedures on an outpatient basis, with consequent cost reduction. Its analgesic efficacy and low incidence of side effects are important characteristics. When long acting local anesthetics are used, even at a single dose, analgesia time ranges between 10 and 18 h. Brachial plexus block allows painless manipulation in physiotherapy, often critical for rehabilitation.

Postoperative pain is perhaps the main complication of shoulder arthroscopy involving the rotator cuff.[1] The peripheral nerve block can provide adequate analgesia in early postoperative period for up to 20 h.[2] The success of brachial plexus block depends on the volume of anesthetic used and on the solution concentration. The concentration is the main determinant of motor blockade.[3]

Clonidine, an alpha-agonist with partial action on alpha-2 receptors, has been used for years as a centrally acting antihypertensive. Literature reports on the potential benefits of adding clonidine to local anesthetics are controversial. The addition of clonidine to intermediate or long-acting local anesthetics for peripheral nerve or plexus block prolongs the duration of analgesia and motor block for about 2 h.

The use of this drug in blockades increased progressively due to its ability to reduce the mass of local anesthetic required, as well as to prolong postoperative analgesia.[4] This potentiating effect was also seen when clonidine was added to bupivacaine.[5] Parenteral clonidine, muscle or intravenously administered, did not show the same benefit in peripheral nerve block compared with its local use.[5] Most results found for clonidine shows no adverse effects, such as hypotension or prolonged sedation with its use in regional block.[6,7] The combination of clonidine with bupivacaine, for example, prolonged the analgesic effect of regional blockade for 3–4 h when used in the popliteal fossa in foot and ankle surgeries.[2]

However, Duma et al.[8] reported that clonidine added to long-acting local anesthetic (bupivacaine or levobupivacaine) produced no prolonged analgesic effect on brachial plexus block and increased the variability of patient response to local anesthetics, particularly to blockade latency. Moreover, the optimal dose of clonidine as an adjunct to blockade has not yet been defined.[8] Dose escalation is related to a larger number of adverse effects, mainly related to the drug systemic absorption.

The aim of this study was to evaluate whether the addition of clonidine to a local anesthetic in brachial plexus blockade contributed to the quality of postoperative analgesia in arthroscopic rotator cuff surgery. We evaluated the visual numeric pain scale at the early postoperative period, in the post-anesthesia care unit (PACU), and at the first 24 h after surgery. We also evaluate the need for rescue analgesia with opioids and compared the incidence of residual motor blockade and the length of hospital stay of patients.