



Scientific and Technological Research

Factors associated with failed brachial plexus regional anesthesia for upper limb surgery[☆]

Diego Alberto Moreno-Martínez^{a,b,*}, Ana Helena Perea-Bello^{a,b},
Judy Lorena Díaz-Bohada^a, Diana Margarita García-Rodríguez^a,
Verónica Echeverri-Mallarino^a, Maury Julieth Valencia-Peña^c, Walter Osorio-Cardona^a,
Paola Nathaly Silva-Enríquez^d

^a Anesthesiologist, Hospital Universitario San Ignacio, Bogotá D. C., Colombia

^b Professor – Instructor, School of Medicine, Pontificia Universidad Javeriana, Bogotá D. C., Colombia

^c Anesthesiologist, Pontificia Universidad Javeriana, Bogotá D. C., Colombia

^d Medical Doctor, Pontificia Universidad Javeriana, Bogotá D. C., Colombia

ARTICLE INFO

Article history:

Received 14 December 2015

Accepted 21 June 2016

Available online xxx

Keywords:

Ultrasonography, interventional

Anesthesia, conduction

Nerve block

Brachial plexus

Ultrasonography

ABSTRACT

Introduction: Brachial plexus block as an anesthetic technique for upper limb surgery has some advantages over general anesthesia. The technique is widely used in our practice, with high effectiveness and adequate safety profile. However, the relationship between block failure and failure-determining factors has not been measured.

Objectives: To identify and quantify brachial plexus block failure-associated factors for upper limb surgery as an initial observation aimed at developing prevention-oriented risk profiles and strategies.

Materials and methods: An analytical observational study was conducted by collecting data from electronic medical records of upper limb surgery using brachial plexus block from the San Ignacio University Hospital between 2011 and 2012. Block failures were identified using standardized clinical criteria, measuring potentially associated factors. Dichotomous comparisons were made and uni- and multivariate logistic regression analysis was performed to identify potential statistically significant variables, based on failed cases and successful controls.

Results: None of the proposed factors was independently associated with failure of brachial plexus block. A qualitative description of failed cases presented confounding factors associated with local practices and the failure characteristics did not show a clinically plausible trend.

Conclusions: There were no factors determined by patient, anesthetic procedure, surgical procedure and operator that could be independently associated with brachial plexus block failure. The suggestion is to fine-tune the definition of failures, not just in the

[☆] Please cite this article as: Moreno-Martínez DA, Perea-Bello AH, Díaz-Bohada JL, García-Rodríguez DM, Echeverri-Mallarino V, Valencia-Peña MJ, et al. Factores asociados con anestesia regional fallida de plexo braquial para cirugía de extremidad superior. Rev Colomb Anesthesiol. 2016. <http://dx.doi.org/10.1016/j.rca.2016.06.007>

* Corresponding author at: Pontificia Universidad Javeriana, Hospital Universitario San Ignacio, Carrera 7 No. 40 – 62, Bogotá, Colombia. Tel.: +57 1 5946161 Ext. 2230.

E-mail address: diegomoreno@javeriana.edu.co (D.A. Moreno-Martínez).

2256-2087/© 2016 Published by Elsevier España, S.L.U. on behalf of Sociedad Colombiana de Anestesiología y Reanimación.

research environment, but in the current clinical practice; to improve the anesthesia records to rise the numbers and the quality of data bases for a quantitative determination of the risk of peripheral regional anesthesia failure and design prevention strategies focused on risk groups.

© 2016 Published by Elsevier España, S.L.U. on behalf of Sociedad Colombiana de Anestesiología y Reanimación.

Factores asociados con anestesia regional fallida de plexo braquial para cirugía de extremidad superior

R E S U M E N

Palabras clave:

Ultrasonografía intervencional
Anestesia de conducción
Bloqueo nervioso
Plexo braquial
Ultrasonografía

Introducción: El bloqueo de plexo braquial como técnica anestésica para cirugía de extremidad superior presenta ventajas sobre la anestesia general. Es ampliamente usada en nuestro medio con alta efectividad y adecuado perfil de seguridad. Sin embargo, no existe la cuantificación de las asociaciones entre fallo del bloqueo y factores determinantes del fallo.

Objetivos: Identificar y cuantificar los factores asociados al fallo del bloqueo de plexo braquial como observación inicial para crear perfiles de riesgo y estrategias para prevenirlo.

Materiales y métodos: Se realizó un estudio observacional analítico, recolectando los datos de historias clínicas de bloqueos de plexo braquial para cirugía de miembro superior del Hospital Universitario San Ignacio de los años 2011-2012, identificando los bloqueos fallidos con criterios clínicos estandarizados, midiendo los factores potencialmente asociados a estos. Partiendo del grupo de fallos (casos) y grupo exitoso (controles) se establecieron comparaciones dicotómicas y análisis de regresión logística con análisis uni- y multivariado para identificar variables con significancia estadística.

Resultados: Ninguno de los factores propuestos se asoció de forma independiente al fallo de bloqueo de plexo braquial. La descripción cualitativa de los casos fallidos presenta factores de confusión asociados a prácticas clínicas locales y ninguna tendencia clínicamente plausible en la característica de los fallos.

Conclusiones: Ningún factor determinado por el paciente, procedimiento anestésico, procedimiento quirúrgico, operador se asocia de forma independiente a fallo del bloqueo de plexo braquial. Se propone afinar la definición de fallo, no solo en el contexto investigativo, si no en la práctica clínica actual, mejorar los sistemas de registro en anestesia para ampliar en número y calidad las bases de datos que permitan aproximarse cuantitativamente al riesgo de fallo de anestesia regional periférica y plantear estrategias de prevención enfocadas en grupos de riesgo.

© 2016 Publicado por Elsevier España, S.L.U. en nombre de Sociedad Colombiana de Anestesiología y Reanimación.

Introduction

Regional anesthesia in the brachial plexus has several clinical applications and multiple advantages over general anesthesia in upper limb surgery, including better postoperative analgesia,^{1,2} lower opioid use,³⁻⁵ less postoperative nausea and vomiting⁶⁻⁸ and, consequently, decreased use of antiemetics, shorter time to ambulation and hospital discharge^{6,9,10} and shorter PACU stay.⁸⁻¹⁰ These advantages explain the growing interest and use by anesthesiologists around the world.

Ultrasonography applied to regional anesthesia has proven to lower the dose and volume of the local anesthetic agent required.^{11,12} In other words, there is a lower probability of systemic toxicity from local anesthetic agents, enables real time visualization of the needle with respect to the tissues

identified, hence reducing the probability of both mechanical and systemic injury (puncture and vascular injection, pleural puncture, peripheral nerve injury, puncture and visceral injury, etc.),^{13,14} decreases the number of punctures and thus improves patient satisfaction and comfort,¹³ in addition to increasing the success rate for some approaches.¹²

Observational studies suggest patient and operator-dependent factors and the technique used may impact the success of the brachial plexus blocks. Patients with preoperative anxiety¹⁵ and elevated body mass index (BMI)^{5,16,17} present more frequent failures. Success may depend on the approach,^{18,19} the needle size in the transarterial technique,²⁰ the guide,^{21,22} the peripheral nerve stimulation threshold, the volume and total dose of the local anesthetic¹² and the number of injections administered.^{16,23,24} The operator's training and experience are crucial for the success or failure of the procedure.²⁵

Download English Version:

<https://daneshyari.com/en/article/8616510>

Download Persian Version:

<https://daneshyari.com/article/8616510>

[Daneshyari.com](https://daneshyari.com)