A new method to calculate the maximum dose of local anesthetics
Um novo método para calcular a dose máxima de anestésicos locais
Un nuevo método para calcular la dosis máxima de anestésicos locales

Julierme Ferreira **ROCHA**[1]
Song **FAN**[2]
Eduardo **DIAS-RIBEIRO**[3]

[1]DDS, MS, PhD - Professor, Oral and Maxillofacial Surgery, Dental School of Patos, Federal University of Campina Grande and Center
University of Patos, Patos, Paraíba, Brazil
[2]DDS, MD, PhD - Professor, Department of Oral and Maxillofacial Surgery, Sun Yat-sen Memorial Hospital, Sun Yat-sem University, Guangzhou, China
[3]DDS, MSD, PhD in Dentistry - Professor, Oral and Maxillofacial Surgery, Dental School of João Pessoa, Federal University of Paraíba, João Pessoa, Paraíba, Brazil

ABSTRACT

The purpose of this correspondence is to present a suggestion of a simple and practical formula to calculate the maximum recommended dose of local anesthetics. We believe that using the proposed formula, it will be easier to calculate the maximum recommended dose.

Descriptors: Local Anesthetics; Drug Dosage Calculation; Clinical Practice Pattern.

LETTER TO EDITOR

Local anesthetics (LA) are drugs used safely in dentistry. In situations where a longer dental procedure is performed, a higher dose of LA is usually used and the risk of overdose may occur. The calculation of the maximum recommended dose (MRD) of LA is ideal in this context[1]. However, many professionals and academics often report difficulties in calculating the MRD of LA for each patient. The purpose of this correspondence is to present a simple and practical formula to facilitate this calculation. One should avoid using the formula to determine the MRD of LA in children under 10 kg or in unhealthy patients[1]. When the calculation is used in solutions without vasoconstrictor, the value should be rounded up to the nearest half-tube[1]. When the dose of LA is limited by the vasoconstrictor, it is necessary to perform another calculation based on the vasoconstrictor and its concentration[1]. Below is the formula:

$$DA = (M \times B) / (\% \times 18)$$

DA – Anesthetic dose;
M – Patient weight (kg);
B – Dose of anesthetic solution / kg;
% - Concentration of the local anesthetic agent.

Example 1: 70kg patient; 4% articaine hydrochloride with epinephrine 1:100.000
DA = (70 x 7) / (4 x 18)
DA = 490 / 72
DA = 6.8 tubes

Example 2: 70kg patient; 2% mepivacaine hydrochloride with epinephrine 1:100.000
DA = (70 x 6.6) / (2 x 18)
DA = 462 / 36
DA = 12.8 tubes

In the example 2, the dose of LA exceeded MRD, that is, 400mg of 2% mepivacaine hydrochloride with vasoconstrictor. Therefore, this value is used in the calculation:

70kg patient; 2% mepivacaine hydrochloride with vasoconstrictor
DA = (70 x 6.6) / (2 x 18)
DA = 400 / 36
DA = 11 tubes

REFERENCES

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CONFLICTS OF INTERESTS

The authors declare no conflicts of interests.

CORRESPONDING AUTHOR

Eduardo Dias Ribeiro
eduardo_ufpb@hotmail.com
Universidade Federal da Paraíba (UFPB) - Centro de Ciências da Saúde - CCS Disciplina de Cirurgia Bucomaxilofacial I Campus I - Lot. Cidade Universitaria, PB, 58051-900