Knowledge and attitude of the students about the local anesthetics used during surgery among South Indian population

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INTRODUCTION

A local anesthetic is a medication that causes the absence of pain sensation. When it is used on specific nerve pathways, paralysis also can be achieved. Clinical local anesthetics belong to two classes: Amino amide and amino ester. Some of the commonly used local anesthetics are bupivacaine, mepivacaine, prilocaine, lignocaine, etc. For example, 3% of local anesthetics administrated means that 3 g of the drug is dissolved in 100 ml of solution (30 mg/ml). Local anesthetics potency varies in their concentration typically ranging from 0.5% to 4%. For better understanding, bupivacaine is more potent than articaine, permitting it to be formulated as 0.5% concentration (5 mg/mL) rather than 4% concentration (40 mg/mL).

There are various varieties of local anesthetics with or without adrenergic and non-adrenergic vasoconstrictor. Parameters such as agents binding to proteins, pH, fat solubility, vascularity of the injection site, and solubility constant (pKa) in local anesthetics are the crucial factors that influence both anesthesia and systemic toxicity.

The selection of particular anesthetics to be administrated in each patient differs according to system conditions of the person based on the disease present such as diabetics, pregnancy, and hypertension. It also belongs on the duration of procedure performed (long or short). The administration of local anesthetics also plays a key role. The success of administration of the drug depends on factors such as injection techniques, site of administration, dosage, and allergic reactions. The local anesthetics are administered in several methods such as topical anesthesia, infiltration anesthesia, field block or ring block anesthesia, peripheral anesthesia, and tumescent anesthesia. The use of local anesthetics also plays a role in major procedures, but, in general, these techniques were employed of necessities rather than choice.
Many researches reveal that the failure of local anesthetics is more likely to occur due to choosing improper site for injection and inappropriate techniques. The anatomy of maxillary and mandibular nerves is complex pathways and divisions. Local anesthetics are administrated based on severity of the pain during surgery and also for post-operative pain management. The major complications of drug overdose are seizures, stroke, postural hypotension, angina pectoris, and myocardial infarction. Local anesthetics are given by trained medical/dental professionals and only in the doctor’s office or hospitals. Recent studies also show that improper administration of local anesthetics also leads to Diplopoda, palpebral ptosis, and blindness. Therefore, students face difficulty to meet the clinical diagnosis and proper treatment due to anxiety. It is important to evaluate the knowledge of medical/dental undergraduates in relation to the above-mentioned facts that can not only make careful evaluation and ethics but also fulfills the quality of education of the given theme.

MATERIALS AND METHODS

A self-prepared questionnaire was given to medical/dental undergraduate students comprising 10 questions with multiple choice answers covering all aspects of local anesthetics, their ability of action, type, duration of onset, dosage, and complication. The survey was winded up after 2 weeks. At the end of the survey, all the data were collected and compiled for statistical study.

RESULTS

From Figure 1, we can say that more than half of the students have less knowledge about local anesthetics. Moreover, Figure 2 implies that most of students do not clear idea about the drugs used for local anesthetics.

DISCUSSION

An accidental intravascular injection of local anesthetics may happen due to any injection procedures. Many complications can arise due to improper administration of local anesthetics which may lead to temporary or permanent problems; some may damage the patient or even be life threatening. Many factors may interrupt the selection of local anesthetics such as action time, efficacy, and toxicity and a large percentage of students were unaware of how to calculate the dosage. In India, the local anesthetic cartridges used are set at 1.8 ml to make the calculation easier because this value can be misunderstood as 2 ml, thereby leading to an overestimate of the drug that is induced in the patient and as a result automatically introducing a safety margin. Syncope may be related to fear and anxiety of injection. Failure of local anesthetics to be effective is in relation to many sections such as improper deposition of the drug in wrong anatomical position.

The inability to understand and manipulate information about the drugs used in local anesthetics among the undergraduates can be corrected only by educating them with proper knowledge and making them more exposed to the procedures, thereby reducing their anxiety associated with injections. In comparison with other studies, the local anesthetics knowledge still remains shallow among the students.

CONCLUSION

In conclusion the knowledge of local anesthetics among the students seems to be inadequate and worrying since the systemic toxicity is dose dependent. It is recommended that they should upgrade themselves regarding local anesthetics by gaining proper knowledge and reducing anxiety level by more exposures.

REFERENCES


2. Felipe B, Buzetto SC, de Mello Cabral A, Mayrink G. Knowledge of dental students in relation to local anesthetics.

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