Aspiration before local anesthetic deposition: Its importance in dental practice

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ABSTRACT

Aspiration is an important and highly recommended step before giving a local anesthetic solution In this regard, a survey involving (50) dentists were requested to fill in a special form specifically designed for this purpose. The results showed that the majority of dentists (90%) do not routinely perform aspiration before giving a local anesthetic solution for one or more reasons.

Key word: Aspiration, local anesthetic solution.

الخلاصـــة

عملية السحب (Aspiration) هي خطوة مهمة ومفضلة قبل حقن المادة المخدرة الموضعية. في هذا الخصوص تم إجراء دراسة شملت خمسين طبيب أسنان طلب منهم إملاء اســتمارة خاصــة صممــت لــهذا الغرض. أظهرت النتائج أن ما يقارب (٩٠%) من أطباء الأسنان لا يقومون بعملية السحب قبل إعطاء المــادة المخدرة الموضعية لسبب أو لآخر.

INTRODUCTION

It is well recognized that aspiration is a very important step in an injection technique before a local anesthetic solution or drug is to be deposited into the tissue or into a blood vessel near the vicinity of the needle inserted [1,2,3,4]. In regard to dentistry, achieving negative aspiration in a dental cartridge will aid in the success of anesthesia as well as will avoid the intravascular injection of solution, which is a potential hazard in oral and maxillofacial procedures with its possible side effects and complications [3,5,6,7,8]. Aspiration, which is designed to minimize such outcomes, is a common but far from universal practice [3]. Even when aspiration is attempted, the incidence of intravascular injection is not eliminated entirely [9,10,11]. In infiltration techniques, aspiration may not be important as the needle is not inserted deeply into the tissue and only minor blood vessels are present around the needle where its lumen is greater than the blood vessel itself [3,4].

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Not so in nerve block techniques of either the maxilla nor mandible where achieving negative aspiration is a must before giving a local anesthetic solution [12,13,14]. The presence of major blood vessels in the area surrounding the dental needle in an Inferior dental block, Posterior superior alveolar nerve block and Infra orbital nerve block technique obligates the administrator to perform aspiration before giving a local anesthetic solution [3].

Several cases in the literature have been reported whereby the local anesthetic solution was deposited into a blood vessel resulting in adverse side effects and complications as for e.g. ocular disturbances, tachycardia, fainting ... etc. [15,16,17]. For this purpose, a survey was conducted in an attempt to reveal the facts behind why most dentists ignore such a simple but most important step. .

METHODS

The survey involved (50) dentists who were requested kindly to fill down a data form designed for this study. The form included the following questions:

Do you perform aspiration before giving a local anesthetic solution?

Yes ☐ No. ☐

If No Why ?

- Time consuming ?
- No aspiration syringe available ?
- Other reasons if any ?

RESULTS

The results showed the following:

1/(10%) of dentists stated Yes they do routinely perform aspiration especially in block techniques.

2/(90%) of the dental colleagues stated No, (75%) of them said that they do not possess an aspirating syringe, (11%) stated that it was time consuming, while (4%) stated that it was too difficult to perform aspiration before giving a local anesthetic solution. The above results are summarized in the following table:

% of Dentists Performing Aspiration	% of Dentists not Performing Aspiration
10%	90% 75% No syringe available 11% Time consuming 4% Too difficult

DISCUSSION

It is well recognized that achieving negative aspiration before giving a local anesthetic solution and especially in nerve block techniques is a very important step for its success as well as avoiding any possible adverse reactions when the solution is injected into a blood vessel [16]. Several reports in the literature are available where the local anesthetic solution was deposited into a blood vessel resulting in serious complications [12,13,14,18]. It is also known that these reactions and complications are either due to the local anesthetic agent itself or the vasoconstrictor contained within the solution [17,19]. Whatever the agent responsible for the reaction it is the duty of the dentist solely to provide the patient with a secure and safe atmosphere where dental treatment can be performed with success. Although, local anesthesia has been proven to be safe throughout its decades of use, ignoring a simple but basic step, which is achieving negative aspiration, may unfortunately result in serious consequences such as tachycardia, sweating and fainting.

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