A Survey of Local Anesthesia Education in Turkish Dental Schools

Ceyda Özçakır Tomruk; İnci Oktay; Kemal Şençift

Abstract: The aim of this study was to evaluate differences with regard to local anesthesia education in Turkish dental schools. Questionnaires designed to collect information about local anesthesia education were sent to the heads of the Departments of Oral and Maxillofacial Surgery of seventeen Turkish dental schools. Eleven returned the completed survey for a response rate of 64 percent. It was determined that dental schools begin the theoretical part of their local anesthesia (LA) curricula during the first half of the third year. Most dental schools start teaching the practical aspects during the second half of the third year on average—half a year after the beginning of the theoretical background. The first injection in humans, usually a fellow student (82 percent), is mostly supervised by an oral and maxillofacial surgeon. The number of injections under supervision usually depends upon the individual capabilities of the student. None of the schools said they required permission of a medical ethics committee for injections on fellow students. Seventy-three percent of the schools said they were satisfied with their current LA teaching and were not planning to make any changes. Overall, LA teaching programs showed minor variations across the surveyed Turkish dental schools.

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Local anesthesia (LA) has been defined as a loss of sensation in a circumscribed area of the body caused by a depression of excitation in nerve endings or an inhibition of the conduction process in peripheral nerves. LA is required to allow invasive dentistry to be carried out in a painless manner. Teaching the mechanism of anesthetics and the ability to deliver anesthetic injection techniques correctly is an important aspect of dental curricula. In the current profile for the European dentist, competency 6.34 states that “a dentist must be competent at infiltration and block local anesthesia in the oral cavity for restorative and surgical procedures or other treatment, as needed, for orofacial pain management, including management of potential complications of local anesthesia.”

Teaching the principles of dental anesthesia provides an excellent opportunity to integrate the clinical and basic science curricula. Decisions for proper patient care requiring anesthesia modalities necessitate that students are able to apply the didactic knowledge they acquired from anatomy, physiology, pharmacology, and medical emergencies courses. Teaching LA is a complex and comprehensive process for both basic science and clinical faculty members, and the transition to the first injection of a patient is often difficult for dental students. Many newly qualified dentists indicate current LA courses do not provide adequate preparation for the initial demands of a general practice. To date, there is relatively scarce information on teaching LA to dental students. The aim of this study was to evaluate the differences with regard to local anesthesia teaching in Turkish dental schools.

Materials and Methods

An eighteen-item questionnaire-based study was designed to gather information about local anesthesia education at Turkish dental schools. The survey was conducted in April and May 2011. Data were collected from surveys sent to the chiefs of oral and maxillofacial surgery departments at dental schools in Turkey. Seventeen out of thirty-eight dental schools in Turkey were asked to complete the survey. The remaining twenty-one dental schools were excluded because they had only been founded within the last five years. These schools were deemed not to have enough experience with all years of a five-year curriculum.
Results

Of the seventeen dental schools contacted, eleven (64.7 percent) responded to the survey. No response was received from the remaining six schools, even though notices were sent. The mean number of dental students at the schools was 426±174 (between 115 and 700 per school), showing a wide variation; the mean of yearly enrollment of dental students was 100±38.

All of the dental schools said they begin the theoretical background of local anesthesia curricula during the first half of the third year. On average, most dental schools begin to teach the practical aspects during the second half of the third year, after the theoretical background has been taught (Table 1). Overall results of the survey on teaching of local anesthesia in curricula of Turkish dental schools are shown in Table 2. Most dental schools use textbooks and syllabi. The theoretical aspects of LA education are assessed by either a written examination only (100 percent) or both written and oral examinations (82 percent). Sixty percent of the dental schools have a practical examination to evaluate the students’ learning. In almost half of the schools, the students practiced on non-human objects (e.g., fruits such as oranges) before they started clinical practice on humans. Ninety-one percent of the surveyed schools reported being satisfied with their current local anesthesia education; only 10 percent were planning further changes including preclinical training models.

Discussion

Most practitioners recognize the importance of dental anesthesia education and training. However, little consensus exists regarding the extent of anesthesia training that is appropriate for a dental school’s undergraduate curriculum. This is the first study to assess theoretical and clinical training in local anesthesia in Turkish dental schools. Questionnaires were sent to the heads of the Department of Oral and Maxillofacial Surgery of seventeen schools. Completed questionnaires were returned by eleven schools, resulting in a response rate of 64.7 percent.

The results show similarities as well as diversities. One of the similarities is that the theoretical instruction is separated from the practical instruction and precedes the clinical teaching by half a year. One of the differences is in administering local anesthetics on non-human objects prior to starting work in the clinics. At some dental schools, the students administered LA on non-human objects such as an orange, while the other students performed their first injection on a fellow dental student. In most cases (73 percent), dental students performed their first injection on fellow dental students who do not require dental treatment, under the supervision of an oral and maxillofacial surgeon. These results are consistent with the study conducted by Brand et al.2 and with older reports about local anesthesia teaching in the United States.4,8

Electronic training models have been available for more than twenty years. However, none of the Turkish dental schools currently use electronic training models before the initial injection on humans although several dental schools reported plans to introduce them in the near future. Furthermore, there is no evidence that the electronic training models have shown any superiority in the teaching of local anesthesia.9 However, in the near future, the virtual reality method may also play an important role in training students on local anesthesia with the accumulation of more data on its success.10

Brand et al. evaluated dental students’ opinion of their LA education and reported that programs and rating of this teaching by dental students show a wide variation across Europe.9 However, students’ opinion was not considered in our study. It is evident that feedback from the recipients of education will provide useful information regarding the best methodology to familiarize a novice with local anesthetic techniques.

<table>
<thead>
<tr>
<th>Initial Teaching</th>
<th>Theoretical Background</th>
<th>Practical Aspects</th>
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</thead>
<tbody>
<tr>
<td>Year 3, first half</td>
<td>11 (100%)</td>
<td>—</td>
</tr>
<tr>
<td>Year 3, second half</td>
<td>—</td>
<td>10 (81%)</td>
</tr>
<tr>
<td>Year 4, first half</td>
<td>—</td>
<td>1 (9%)</td>
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</table>
Dental anesthesia is a very important step of dental treatment in all aspects of the profession, and in some cases patients judge the skill and expertise of the practitioner by his or her ability to carry out a successful anesthesia. Thus, the professions must ensure that qualified anesthetic skills are instilled in students prior to graduation so that they will be able to provide painless and comfortable dental care to their patients when they start working independently.

**Conclusions**

Although the response rate limits detailed interpretation, the results show a minor variation in local anesthesia teaching at dental schools in Turkey. When the similarities regarding dental curricula increase between dental schools, student mobility with exchange programs may increase all over the country and world. Future studies regarding the students’ opinions of their local anesthesia education are needed in order to support more specific conclusions on this topic.

**REFERENCES**