AWARENESS AND ACCEPTANCE OF LASERS IN DENTISTRY IN TURKISH POPULATION

Emre Tosun, DDS, PhD  
Department of Oral Maxillofacial Surgery,  
Faculty of Dentistry, Hacettepe University,  
Sıhhiye, Ankara

Alper Aktaş, DDS, PhD  
Associate Professor, Department of Oral Maxillofacial Surgery,  
Faculty of Dentistry, Hacettepe University,  
Sıhhiye, Ankara

Hilal Bayram, DDS, PhD  
Denizli ADSM Dental Hospital

Özgür Yeniay, PhD  
Associate Professor, Department of Statistics,  
Faculty of Science, Hacettepe University,  
Ankara

Ferda Taşar, DDS, PhD  
Professor, Department of Oral Maxillofacial Surgery,  
Faculty of Dentistry, Hacettepe University,  
Sıhhiye, Ankara (Retired)

M. Ali Altay, DDS, PhD  
Department of Oral Maxillofacial Surgery,  
Faculty of Dentistry, Akdeniz University,  
Antalya, Turkey

Correspondence  
Emre TOSUN  
Department of Oral Maxillofacial Surgery  
Faculty of Dentistry  
Hacettepe University  
06100 Sıhhiye, Ankara, TURKEY  
Phone: +90 312 3052220  
Fax: +90 312 3104440  
E-mail: emretosun1980@gmail.com

ABSTRACT

Background and Aim: Since the researchers’ and manufacturers’ efforts are mainly based on the perceived desires of patients, it seems imperative that the perception of patients be queried and valued. In this study we seek to illuminate the perception of Turkish dental patients on laser applications and its reflection on the outcomes of dental treatments. The aim of this study is to evaluate the level of comprehension and knowledge of oral surgery patients about “laser assisted oral surgical procedures”.

Materials and Methods: Our survey was carried out among 300 voluntary adult patients who applied to Hacettepe University Faculty of Dentistry Department of Oral Surgery seeking oral surgical treatments.

Results: Our initial finding is that patients’ knowledge about laser treatments and their superiority over conventional treatment methods is very low. Patients with higher levels of education, university graduates in particular, are the ones to visit a dentist more often and tend to have more information about the usage of lasers in dentistry.

Conclusion: At this point we can conclude that dentists should pay more attention to patient awareness and knowledge, informing them not only about the conventional methods of the required treatment but also contemporary approaches, lasers in our case. Well informed patients will have a better vision of the treatment they will be receiving and the alternative ways to get it and therefore act as an important part of utilization of latest advancements in not only dentistry but also all other fields of medicine.

Key words: Dental Laser, Dentistry, Laser Survey

Submitted for Publication: 12.28.2012  
Accepted for Publication: 01.15.2013
INTRODUCTION

In recent years development of lasers has made laser surgery of both hard and soft tissues a realistic option. After the development of medical lasers, researchers worked on the potential use of lasers in both dentistry and oral surgery primarily focusing on soft tissue applications. In 1964 Stern and Sognnaes used the ruby laser to reduce the susceptibility of teeth to decay.1-3 In 1971, Adrian and co-workers showed that the thermal effect of ruby laser was too severe and pulpal damage occurred.4 Following these initial efforts on improvement of lasers, applications on hard tissues also gained acceleration. Today, widening in application fields of lasers renders these devices to be used in various surgical and non-surgical treatment modalities. Patients’ perception of “laser assisted surgical procedures” on the other hand, still remains limited due to lack of awareness and knowledge. Since the researchers’ and manufacturers’ efforts are mainly based on the perceived desires of patients, it seems imperative that the perception of patients be queried and valued. In this study we seek to illuminate the perception of Turkish dental patients on laser applications and its reflection on the outcomes of dental treatments. The aim of this study is to evaluate the level of comprehension and knowledge of oral surgery patients about “laser assisted oral surgical procedures”.

MATERIALS AND METHODS

Our survey was carried out among voluntary adult patients who applied to Hacettepe University Faculty of Dentistry Department of Oral Surgery seeking oral surgical treatments. The survey included 300 patients from Hacettepe University Faculty of Dentistry Department of Oral Surgery. Among the obtained data, the preference of laser treatment was examined by t-test, pre-operative knowledge about laser treatment was investigated by ANOVA with LSD post-hoc test and other parameters were analyzed using chi-square test in SPSS version 15.

RESULTS

In our survey, patients were asked if they were afraid of going to a dentist. Assessing the results, 14% stated that they were afraid a lot, when 32.3% described their condition as uncomfortable and 65.3% stated to have no dental fear at all. Other question patients were asked was if the noises of dental instruments irritate them. They were asked to score their level of discomfort between 0 (feeling very comfortable) and 10 (feeling very uncomfortable). 39.6% scored 0, 35% scored between 1-5 and 25.3% of patients scored between 6-10.

Possession levels of “dental phobia” are similar at all education levels. There was no difference present in terms of dental fear between the patients who had previous bad experience of dental treatment and the patients of no unpleasant experiences. (p=0.528).

Evaluating the above mentioned findings of our survey, patients who stated no dental fear were found to take the noises of instruments as less discomforting (p<0.05). However there is no significant difference in terms of discomfort resulting from dental instruments’ noises between the patients who feel uncomfortable and patients who were afraid a lot of visiting a dentist (p=0.392). Another question patients were applied was how often they went to a dentist. 39% of them stated that they would go to a dentist only when they have an intolerable level of pain. 53.3% on the other hand would visit a dentist whenever they have any kind of complaints. Only 7.3% have their regular dental check-ups every 6 months. Patients with university education tend to have their dental checkups more often than the rest of the participants with lower levels of education. It can be concluded that frequency of regular visits to a dentist remarkably increases with individuals’ education levels (Figure 1).

10.3% of patients participated in our survey received some sort of medical laser treatment at least once in their lives and 9% of patients had previous experiences of dental laser treatments. Patients were asked if they had any information about the lasers and if yes, to specify the source they obtained the information from. Given the fact that patients were allowed to check more than 1 answer of this question, 47.6% had no information about lasers. 16.6% stated that they received the information about lasers from people around him/her, 29% from television, 10% from internet, 8.6% from papers/magazines and 11% from a dentist. When the answers given to a question regarding their level of knowledge about lasers in dentistry (Figure 2) were evaluated together with the previous question about the source of information, patients who received the information from a dentist tend to have more knowledge about lasers than the patients in other groups (p=0.048).

62% of all patients stated that, they would consider laser treatment as more expensive in comparison to the conventional treatment methods. 31% indicated that they had a brief idea about the superiorities of laser treatment when compared with conventional methods. 70.3% of all
patients stated that they would consider lasers of first priority treatment instead of conventional treatment if it is an option. Knowledge about laser assisted treatment methods increases with the education level. According to the results of our survey University graduates have proved to have more information about the use of lasers in dentistry (p<0.05). There is no significant difference between elementary school graduates and intermediate school graduates (p=0.851). Preference of receiving a laser treatment also increases with the level of education (Figure 3). Patients who prefer to receive conventional treatments instead of laser treatment seem to have less information about the use and advantages of lasers in dentistry (p<0.05). Patients who visit a dentist just for regular check-ups even without any complaints tend to have more information about laser than patients in other groups (p=0.005). There is no significant difference in terms of knowledge about uses of lasers in dentistry between the group of patients who visit a dentist only in presence of intolerable pain and the group of patients who visit a dentist when they have any sort of complaints (p=0.70). Patients with background information about the advantages of lasers, choose to be treated with lasers even though they think that laser assisted procedures were more expensive than traditional dental treatments (p=0.024). Majority of patients (63.3%) indicated that they would take laser as a professional privilege of the dentist and they would prefer to have laser treatments instead of conventional treatments (p<0.05). Patients who consider laser applications a professional privilege, are mostly university graduates (p=0.003). The patients who take laser as a professional privilege also think that laser is an expensive way of treatment (p<0.05). Majority of patients, who are aware of the advantages of lasers stated that they would like to be operated with lasers (p=0.013) even though they think that laser is an expensive treatment option (p=0.024).
Primary and intermediate school graduates would not take laser as a treatment option of priority (p=0.472).

**DISCUSSION**

"Phobia" is traditionally defined as "an irrational severe fear that leads to avoidance of the feared situation, object or activity". The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) describes dental phobia as a "marked and persistent fear that is excessive or unreasonable, and the question in our case is if the use of lasers in dental practice allay the fears of dental patients or take it to an even higher level. Fear itself is a very important factor for a patient when he or she is to decide to visit a dentist or not and also which dentist in particular to visit. While discomfort and pain account for the most prominent factors in dental phobias, dental professionals encounter many patients that have dental phobias and refuse to go to a dentist unless they have severe pain. Scandinavian epidemiological studies have shown that about 7–10% of the populations are highly anxious of dental care. Milgrom et al, point out the dental anxiety as 20% in the US. On the other hand, assessing the patients' view on laser therapy Liu et al, stated that 95% of their patients felt more comfortable with laser therapy, and 90% would choose laser as the cavity preparation tool for their next dental visit and they also stated that there was a significant difference in pain experience between the laser and drill treatment. The Er:YAG laser has been reported to produce a minimum level of vibration and noise during cavity preparation and Keller et al, reported that 93% of the patients reported no or little pain during dental applications performed with Er: YAG lasers. In the contrary with dental lasers, high-speed drilling causes greater tooth vibration and has a frequency spectrum close to the peak of hearing sensitivity. Wigdor's study shows 69% of the patients think that lasers make their visit to the dentist easier and most of them report reduced levels of pain and discomfort.

In the same survey, most of the patients underwent dental therapies admitted that they felt uncomfortable about dental treatment due to their previous experiences. According to Wigdor’s study 95% of the patients would pay an additional fee if a laser can be used instead of the drill. Patient perception is a very important motivator in the dental profession. The ultimate question is whether lasers will provide less negative stimuli than the dental drill. According to Wigdor et al, 25.3% patients stated that hand piece noises make them feel uncomfortable. Such results can indicate laser treatment as a good alternative for dental phobic patients along with its cutting edges in contemporary dentistry.

Our survey seeks to illuminate the level of awareness of laser assisted dental applications and their advantages among Turkish population. Our initial finding is that patients’ knowledge about laser treatments and their superiority over conventional treatment methods is very low. Patients with higher levels of education, university graduates in particular, are the ones to visit a dentist more often and tend to have more information about the usage of lasers in dentistry. Well educated patients also have more information about laser treatments and they prefer laser assisted treatment approaches more often than patients in any other group. At this point we can conclude that dentists should pay more attention to patient awareness and knowledge, informing them not only about the conventional methods of the required treatment but also contemporary approaches, lasers in our case. Well informed patients will have a better vision of the treatment they will be receiving and the alternative ways to get it and therefore act as an important part of utilization of latest advancements in not only dentistry but also all other fields of medicine. Patients' demand will also rise given the fact that they are informed in detail about current treatment approaches.

Most of the patients who are aware of the superiority of laser treatment in dentistry tend to prefer laser instead of the conventional drill treatment. Also most of patients think that laser treatment choice is a professional privilege for a dentist. Therefore dentists who can offer laser treatment as an option are regarded as more professional clinicians.

**CONCLUSION**

Dental lasers become more popular day by day not only among dentists but also patients owing to their superiorities in application and patient tolerance. Patient awareness, a crucially important factor in demand for laser therapies is of a significant importance and should be improved via informing dental patients. Of a relatively lower level of awareness in Turkish population, lasers should be introduced in detail and thoroughly discussed with patients in terms of advantages and disadvantages. Such an approach will not only encourage patients to receive laser therapies but also enhance patients' perception on any sort of 'contemporary' treatment.
REFERENCES


