



KNOWLEDGE OF THE USES OF LASER AMONG THE DENTAL STUDENTS IN JAMMU CITY

Dental Science

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ABSTRACT

AIM: To assess the knowledge of the uses of laser among the dental students in Jammu City. **MATERIAL AND METHOD:** The present cross sectional study was conducted among 200 dental students from dental colleges of Jammu city. Informed consent was obtained from the participants before the distribution of questionnaire. The data was collected using close ended, self-administered questionnaire which was given to the dental students who participated in the study. The information collected by the questionnaire included the demographic details such as gender and year of education and questions to assess dental laser education and knowledge. The study was done in the working hours of the dental colleges so as to get the maximum response. **RESULTS:** 95.5% of the subjects were having awareness of lasers use in dentistry. It was found that laser used on hard tissue, soft tissue and on both was acknowledged by 3.5%, 21%, and 72% of the subjects respectively. 91% of the subjects thought that lasers lead to less pain, less bleeding, less time taking and lesser use of anaesthesia. **CONCLUSION:** Education about dental lasers should be added to the curriculum of undergraduate program since it is highly essential for students to know about newer technologies and apply it in their practice.

KEYWORDS

Dentistry, Lasers, Dental Students

INTRODUCTION

New science and technologies are already making their way into all aspects of dental practice and have changed the traditional approaches, which require that students and practitioners receive the necessary knowledge¹. The use of lasers is one of these hallmark technologies that enables dentist to work faster, more precisely and more efficiently^{2,3}. Different laser devices and different wavelengths opened up various treatment options for diverse indications. Laser Dentistry is not assigned to a one particular field, and as a result the arch was extended from Conservative Dentistry over the Oral and Facial Surgery throughout Paediatric Dentistry. In addition to its uses in hard tissue preparation (bone and tooth preparation) and soft tissue surgery, laser treatment in combination with composite or glass ionomer restorations, or in the treatment of hypersensitive teeth are examples of different application areas^{4,5}.

The use of laser technology has been widely used in dentistry. When used efficaciously and ethically, lasers have been an essential tool in many dental treatments. However, lasers have got its own limitations. It has never been the "magic wand" in medicine and dentistry. The futures of laser dentistry are bright as further researches are going on. The emergence of lasers for various applications in dentistry may influence the treatment planning of patients. Most new practitioners are tempted to use only those technologies in their daily practice with which they have worked and learned about during their dental training. In view of the increasing availability of new technologies in dental practices and the need for more education, this survey was conducted to assess the knowledge of the uses of laser among the dental students in Jammu City.

MATERIAL AND METHOD

The present cross sectional study was conducted among dental students from dental colleges of Jammu city. Informed consent was obtained from the participants before the distribution of questionnaire.

Sample Size: A simple random sampling of 200 students.

Inclusion Criteria: Students present on the day of survey.

Exclusion Criteria: Students not willing to participate in the survey.

Duration of Study: The duration of the study was of 1 month, November 2020.

Questionnaire: The data was collected using close ended, self-

administered questionnaire which was given to the dental students who participated in the study. The information collected by the questionnaire included the demographic details such as gender and year of education and questions to assess dental laser education and knowledge.

Data Collection: All the students were pre informed about the survey. The data is collected using a close-ended questionnaire. The study was done by mailing the survey as well as by Google survey method among the students to get the maximum response. In the questionnaire form, the respondents were informed about the aim of the study as well as the fact that participation in the study was totally voluntary and anonymous.

Statistical Analysis: The means and standard deviations of the measurements per group were used for statistical analysis (SPSS 22.00 for windows; SPSS inc, Chicago, USA).

RESULTS

In the present study, among all the subjects 31.5% were males and 68.5% were females.

Maximum subjects were in the age group of >20-25 years (71.5%) followed by >25-30 year age group (23.5%). 17%, 32.5%, 25.5% and 25.0% of the subjects belonged to third year B.D.S, final year B.D.S, interns and postgraduate category respectively.

95.5% of the subjects were having awareness of lasers use in dentistry. 91% and 98.5% of the subjects know what dental laser is and have interest in dental laser respectively. According to the subjects, dental laser is the most commonly used in Prosthodontia branch 68% followed by Orthodontia Branch 7%, Oral Pathology 5.5%, Pedodontia 5.0% and Public Health Dentistry 3.5% while it is least used in Oral Medicine And Radiology Department 0.5% followed by Oral Surgery 1.5% and Endodontia Branch 2.5% (Table 1).

Table 2 shows the distribution of the dental laser used on oral cavity and it was found that laser used on hard tissue, soft tissue and on both was acknowledged by 3.5%, 21%, and 72% of the subjects respectively. 91% of the subjects thought that lasers lead to less pain, less bleeding, less time taking and lesser use of anaesthesia. Only less pain, less bleeding, less time taking and lesser use of anaesthesia was revealed by 5.0%, 0.5%, 2.0% and 1.5% of the subjects respectively. It was found that 66% of the subjects stated that skin and eyes should be

protected while using laser while 20.5% believed that laser may damage cornea and burn retina.

Table 1: Distribution of knowledge regarding various types of dental laser among the study subjects

Dental Laser	N	%
Co2	8	4.0
Diode	54	27.0
Er: Cr: YSGG	1	.5
Er: YAG	1	.5
Nd: YAG	1	.5
Argon	4	2.0
All of the above	86	43.0
None	45	22.5
Use in Dental Speciality		
Periodontia	12	6.0
Endodontia	5	2.5
Orthodontia	14	7.0
Pedodontia	10	5.0
Oral surgery	3	1.5
Oral pathology	11	5.5
Oral medicine and radiology	1	.5
Public health dentistry	7	3.5
Prosthodontia	137	68.5
All of the above	12	6.0

Table 2: Distribution of various Dental laser use, advantages and view on laser protection

Tissue	N	%
Hard Tissue	7	3.5
Soft Tissue	42	21.0
Both	144	72.0
None	7	3.5
Function		
Hemostasis	14	7.0
Ablation	3	1.5
Decontamination	14	7.0
All of the above	145	72.5
None of the above	24	12.0
Advantages		
Less pain	10	5.0
Less bleeding	1	.5
Less time taking	4	2.0
Lesser use of anesthesia	3	1.5
All of the above	182	91.0
Laser Protection	N	%
Can't be used with alcohol based materials	5	2.5
Can't be used with oil based lip products	2	1.0
May damage cornea and burn retina	41	20.5
Skin and eyes should be protected while using laser	152	76.0
Reason for Lack of Laser Use	N	%
Lack of knowledge	54	27.0
Lack of clinical experience	53	26.5
Lack of patient opting for laser	25	12.5
Price of laser unit	68	34.0

DISCUSSION

Nowadays, lasers are incorporated into the daily practice. Adequate education on newer dental technologies, theoretically and practically, provides sufficient knowledge needed for students to utilize the newer dental technologies in their practice. This study was conducted on 200 dental students to determine their dental laser education and knowledge. A written questionnaire-based survey was chosen for the study as it is cost-effective, reduces bias and can be easily used for large sample sizes.

Gender distribution in our study is accordance with other studies conducted by Swapnil Rangnath Kadam et al⁶. This difference in the gender could be because of the fact that female admission rate is higher than the males in this era.

In our study, 22.5% of the subjects did not know about any type of dental laser while 27% of the subjects knew about diode laser. 43% of

the subjects had heard about the entire mentioned dental laser. Only 0.5% of the subject knew about Er: Cr: YSGG, Er: YAG and Nd: YAG laser. This finding is also comparable to a study conducted by Bordea et al⁷ which reported that 94.98% of the study participants knew what dental laser was. It is also comparable to a study conducted by Jayashree and Radhika⁸ which reported that 78% students knew what laser was, but only 2% had previous dental laser experience.

Dental laser used both on soft as well as hard tissue was acknowledged by 72% of the subjects in this study. This result was in accordance to the other study done by Reshma Avhad et al⁹ they found that, most of the students, about 104 (74.3 %) had a knowledge about laser being used for both soft tissue as well as hard tissue.

In the present study, 91% of the subjects thought that lasers lead to less pain, less bleeding, less time taking and lesser use of anaesthesia. This finding was similar to the study conducted by Bordea et al⁷ which reported that 94% participants agreed that laser technique is more comfortable. In a study by Swapnil Rangnath Kadam et al⁶, 127 (84.7%) participants agreed that laser technique is more comfortable when compared to conventional technique.

In our study, 66% of the subjects stated that skin and eyes should be protected while using laser while 20.5% believed that laser may damage cornea and burn retina. Swapnil Rangnath Kadam et al⁶ in their study found that when asked about the views regarding the safety protocol of dental laser, around 102 (45.1%) of the respondents knew that skin and eyes should be protected when using lasers. In a study conducted by Jayashree and Radhika⁸, 48% had similar views about safety protocols. Reshma Avhad et al⁹ in their study found that only 44 % of students had knowledge of using safety protocol during laser procedure.

In the present study 27%, 26.5%, 12.5% and 34% of the subjects felt that lack of knowledge, lack of clinical experience, lack of patient opting for laser and price of laser unit respectively were the main reasons for lack of use of dental lasers. These findings were similar to the ones reported by Bordea et al⁷ wherein the students chose the lack of lectures in the field of laser in dentistry associated with the lack of knowledge to be the principal reason for the lack of use of dental lasers. Reshma Avhad et al⁹ in their study showed that expensive dental laser treatment (41.7%) followed by lack of knowledge about lasers (39.6%) were the main reasons for the lack of use of dental lasers.

The limitation of the present study is that it was a cross sectional study conducted on a small sample; hence, the results cannot be generalized as the teaching patterns differ among various universities across India.

CONCLUSION

The results of this study suggest that the undergraduate dental students had inadequate laser education and insufficient knowledge regarding dental lasers. Therefore more education about dental lasers should be added to the curriculum of undergraduate program since it is highly essential for students to know about newer technologies and apply it in their practice.

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