

Type of Article – Original

Assessment and Evaluation of Implantology Courses for Post Graduate Students

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Abstract

Introduction- In dentistry, dental implants have become an indispensable established therapy to replace missing teeth in different clinical situations. Henceforth, implant education has become an integral part of postgraduate prosthodontic curriculum.

Materials and Methods- This study was conducted in the Department of Prosthodontics, Crown and Bridge at S. Nijalingappa Institute of Dental Science & Research, Gulbarga, Karnataka. A questionnaire of 22 questions was mailed to the postgraduate students of prosthodontics. A total of 83 students participated in the study. The forms were analyzed by using suitable descriptive statistics.

Results- A variety of responses were received from the participants. A total of 82 (98.8%) participants were included in the study. Most of the participants (around 56 of them) start to place implants from the second year and remaining. 69 of the participants responded in affirmation with the use of CBCT for routine implant cases. 54 participants reported that overall, in a month, more than 10 implants were placed in their department. In culmination, out of the 83 participants 69 of them want to learn more as implantology is evolving as a separate branch in dentistry.

Conclusion- Implantology treatment is constantly evolving as the prime line of treatment in different edentulous situations. Within the limitation of this study, it is concluded that dental colleges of India having active postgraduate program are moderately equipped with Implantology syllabus and courses. Although, there are variations in responses, but it has made necessary to review and standardize dental implant curricula among institutions.

Keywords – Dental implants, Implantology course, CBCT, Edentulous.

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Introduction

In dentistry, dental implants have become an indispensable established therapy to replace missing teeth in different clinical situations.¹ A dental implant

is a prosthetic device made of alloplastic material implanted in the oral tissues beneath the mucosal or/and periosteal layer, and on/or within the bone to provide retention and support for a fixed or removable dental prosthesis.² The use of dental implants in the treatment of missing tooth has proved effective in the long term. Success rates of 82.9% after 16 yrs. of follow-up have been reported. Since the introduction of the concept of osseointegration in dentistry, the dental implants treatment has become quite popular for the replacement of the lost or missing teeth.

Implant dentistry is currently being practiced in an atmosphere of enthusiasm and optimism.³ Therefore, for a successful implant therapy for patients it is important that students graduating from dental schools should have solid knowledge and extensive understanding of the implant treatment.¹ Henceforth, implant education has become an integral part of postgraduate prosthodontic curriculum.

Although, several workshops and courses are held in the institutes regarding implantology, it is important that the quality of the programmes be assessed with thorough evaluation of knowledge of the postgraduate students. Even though, several surveys have been conducted to assess the status of the implant curricula as a part of the undergraduate programme, but seldom one finds a survey assessing the current status of oral implantology for the postgraduate curricula. Hence, this study was aimed to know the knowledge of the current dental postgraduate students with respect to implantology in general, the idea of placement of implants, treatment planning, treatment charges and the level of satisfaction they have with their present implantology course.

Materials and Methods

This study was conducted in the Department of Prosthodontics, Crown and Bridge at S. Nijalingappa Institute of Dental Science & Research, Gulbarga, Karnataka. A questionnaire of 22 questions was mailed to the postgraduate students of prosthodontics. Those who were not willing to be a part of the study

were excluded. The participants were sent an email enclosing both the participant information sheet and a link created using Google Docs for survey questionnaire. Responses received were stored in Google Spreadsheet. A total of 83 students participated in the study. The forms were analyzed by using suitable descriptive statistics.

Results

A total of 83 students participated in the study. The distribution of participants per year constituted as 28 students (33.73%) from first year, 37 students (44.58 %) from second year and 18 students (21.69 %) from third year. Numerous students from various states participated in the study. Out of the 83 participants, 30 participants were male (36.14%) and 53 (63.86%) were female. There were 79 participants who aged less than 30 and only 4 of them were above 30 years old (table 1).

Out of the 83 participants, it was observed that 57 of them used conventional implants, only a single participant out of the 83 respondents had used basal implants and 4 of them were unaware of the type of implant used in their department/ college.

Out of 83 participants, 5 participants responded that from the 1st year itself they are allowed to place implants whereas most participants (around 56 of them) start to place implants from the second year and remaining 21 participants were allowed from third year.

Out of the 83 participants, currently only 35 of them had placed implants, out of which 30 of them placed more than 10 implants and 48 participants had not placed implants.

Out of all participants, 69 of them responded in affirmation with the use of CBCT for routine implant cases, whereas 13 of them were unaware about the imaging used. Out of the 69 participants only 25 of them had the CBCT facility available at their college premises. It also gives the numbers for, if the prosthesis placement is done by the participants or not.

54 participants reported that overall, in a month, more than 10 implants were placed in their department, 10 of them said that greater than 10 implants were placed whereas 19 of them were not aware of the logistics.

It was also asked if the participants performed full mouth implant placements. On asking specifically, if they performed full mouth prosthesis placement from start to finish, 44 of the participants said yes whereas 21 of them said no. 16 of the participants did it with assistance of prosthodontists whereas 2 of

them reported that such cases were directly sent to the Dept of prosthodontics. It also describes the charges for the placement of single and full mouth implants respectively. Out of the 83 participants, 30 of them had performed or assisted in sinus lift surgeries and 53 of them had never done the same.

When asked about the management 21 of them responded with removal and replacement of the same. In culmination, out of the 83 participants 69 of them were not satisfied with the implant education provided by their Institute.

Table 1: Distribution of responses according to Year of Post-Graduation, States, Gender and Age

Year of Post-Graduation		Number of responses	Percentage
First year			
Second year		28	33.73
Third year		37	44.58
Total		18	21.69
		83	100
States			
Karnataka			
Maharashtra		39	46.99
Kerala		20	24.09
Andhra Pradesh		10	12.05
Uttar Pradesh		08	9.64
Gujarat		03	3.61
Goa		02	2.41
Total		01	1.21
		83	100
Gender			
Male			
Female		30	36.14
Total		53	63.86
		83	100
Age			
≤ 30			
>30		79	95.18
Total		04	4.82
		83	100

Discussion

It is not uncommon to find that a conventional partial and/or complete denture may fail to provide psychological comfort, satisfactory function, esthetics, or speech. With an increase in awareness regarding dental implant therapy amongst the patients and newer advancements in the field of implant design, materials, diagnostic and surgical techniques has made it one the most successful treatment modality in the current dental scenario to achieve the above goals. Implant training is an integral part of the post graduate programme.⁴ As no such evidences are available which determines the current trends of dental implantology amongst the post graduate prosthodontic programs of dental colleges of India, therefore this questionnaire study was employed to identify the status of Implantology courses and the learning experience the students are having.

A total of 83 students participated in the study, mostly belonging to the department of prosthodontics, crown and bridge. Out of the 83 participants, 30 were male and 53 were female participants. 79 of the participants belonged to the age category of less than 30 and just 4 of them were aged above 30. The responses were acquired from different states including Karnataka, Maharashtra, Kerala, Andhra Pradesh, Uttar Pradesh, Gujarat and Goa, out of which participants from Karnataka were the maximum, i.e. 46 per cent. Most of the students belonged to second year MDS, i.e. 37, followed by participants from first year MDS i.e. 28 and third year MDS i.e. 18. (Table 1)

Around 98 percent of the participants i.e. 82 of them, were aware and had knowledge about dental implant treatment. The result of the study was in accordance with a study done Nagpal D et al where they concluded that knowledge about dental implants was widespread among postgraduates and dental practitioners of their area.⁵ A fair knowledge about implant kits is also an important attribute towards implant treatment. According this study, 81 of the

participants agreed with the presence of implant kit in their department while 1 participant disagreed with the presence of kit in their department and 1 participant was not aware of it. Out of the 81 respondents to the previous question, 5 participants reported with single kit, 42 of them had 2 kits, 24 of them had 3 kits and 10 had more than 3 kits. According to a study by Bhatt NN 92.8 percent favored the standardization of implant surgical kits across all brands as it lessens the hassle of buying different implant systems and makes the practice of implantology simpler, which is a number similar to this study.⁴

More than 90% of the available Implant system all around the world follows system of crestal Implants. Advocates of basal Implant systems call it to be a better alternative to Crestal Implants in terms of ability to restore almost any type of case, shortened treatment time, less chances of failure. However, the long term results are yet to be proven.⁶ Regarding the usage of type of implants 57 of the participants used conventional implants, single participant used basal implants and 21 of them used a combination of both of the above.

In response to the question, that if any quota is present for the completion of their post graduate programme, in terms of implant placement, 40 students responded in affirmation whereas 16 of them did not have any such quota and rest 16 of them were unaware. In numbers, 7 of them responded with over 10 cases of implant placement as their quota and 33 of them with less than 10 cases as quota which holds in accordance with the guidelines of dental council of India. In order to be acquainted to dental implant surgeries, the postgraduate students are required to assist their seniors or faculty. Out of the 83 respondents placing implants, 11 responded with 2 surgeries to be assisted, 28 responded with 3 surgeries to be assisted and 40 responded with greater than 3 assistances and 4 participants after 1 assistance.

Although, certain studies mention the need of a different course for Implantology, but there are

studies which also emphasize the need of conducting implants in post-graduation itself. Most of the dental practitioners were not practicing implant dentistry due to lack of skills. This indicates a need to revise dental curriculum at various dental schools to improve the knowledge and thus practice of implant dentistry.⁷ According to the responses from this study, only 5 participants from I MDS were allowed to place implants, 56 from II MDS and 21 from III MDS. Out of all the participants 30 of them had placed ≤ 10 implants, 5 of them had placed more than 10 and 48 of them had not placed any implants till date.

Implant courses, are either company sponsored or are affiliated to various organizations.⁸ 51 of the participants responded in affirmation that the Implantology workshops are being held in their college, while 17 of them had no such workshops and 15 of them were unaware. The workshops varied in duration of 2-4 days, to weeks and months and only 3 responses were received where the course was more than a year. Specifically asking if the dental implant workshops recognized by the affiliated university/DCI/Dental implant company, 44 responded in affirmation, 6 of the respondents disagree and 33 of them were not aware 2 of the respondents had affiliation with the university, 13 of them with the Dental council of India, 36 of them with dental implant company and 32 were not aware.

Dental implant placement often requires advanced imaging for its accurate placement. 69 of the participants used the same, whereas 13 participants were unaware. According to a study by Bhatt et al almost participants had an opinion that a combination of the existing diagnostic aids (Mounted cast, IOPA, OPG, CT scan) must be utilized to plan treatment for implant-supported prosthesis. IOPA, OPG and CT scan are important to provide an insight into bone quality and quantity as well as determine the relation of implant to surrounding vital structures.⁴ In this study, out of the 69 respondents, 25 had imaging modality in their premises and 44 did not have. Beas et al in their study recommended to use 3D imaging

for all implant planning, with CBCT as the imaging modality of choice.⁹ Apart from this, out of the 83 participants, 34 used digital software for planning whereas 31 of them were not aware and 18 did not use any.

With the increasing interest in implant dentistry, most of the practitioners who do implants prefer doing both the surgical and prosthetic phases themselves.⁸ 54 respondents gave answers in affirmation to placement of prosthesis from start to finish, whereas 25 of them did it with the help of prosthodontists and 2 of them directly sent it to department of prosthodontics. For the question "Do you perform full mouth implant placement?", 47 answered in affirmation whereas 24 of them did not, while 11 of them did it with the assistance of prosthodontists and 1 of the response was to directly send it to the department of prosthodontics. In a study conducted by Gibson et al, in UK, majority of the practitioners always want to provide both simple surgical and restorative aspects which may reflect the desire of GDPs to provide all aspects of treatment for their patients. Similarly in our study, 44 respondents performed full mouth prosthesis placement from start to finish, 21 of them disagreed, 16 did it with the assistance of prosthodontists and 2 directly sent it to Dept of prosthodontics. In total 54 respondents placed less than 10 implants per month in their department, 10 of them placed greater than 10 implants per month, 19 of them were not aware.

Cost of implants is a major key factor in this type of treating modality. For treatment charges, 30 participants responded less than 10,000 and 53 of them responded saying more than 10,000 which was similar to study by MP Sakshi et al where majority of their participants agreed to the treatment charges of placing single implants 10,000 or more than that.¹⁰ When asked about full mouth treatment, 53 participants responded with more than 20,000 and 21 of them said less than 20,000. Only 9 of the respondents were not aware of the same.

In this study, 30 of the participants had performed or assisted sinus lift procedures during implant placement while 53 had not. This is in contrary to a study conducted by Bhatt NN et al where maximum participants preferred direct sinus floor elevation. Some participants did not prefer to perform sinus floor elevation to avoid invasive procedure.

One-stage implant is an endosseous dental implant designed to be placed following a one-stage surgery protocol.¹¹ For the question, “How many single stage implants have you placed till date?” 7 participants had placed 1 implant, 4 had placed 2, 9 participants had placed 3 implants, 4 of them had placed more than 3, rest 59 had not placed any single stage implants. For second stage implants, 5 participants had placed a single implant, 11 of them had placed 2 implants, 5 of them had placed 3 implants, 14 of them had placed greater than 3 implants and 48 of them did not place any implants.

Possible occurrence of implant failure is a major concern for implantologists and knowledge in such unavoidable fact is clinically essential.¹² Out of the 83 participants, 60 had zero failures, 15 faced single implant failure, 5 of them faced two implant failures and 2 of the participants faced 6 implant failures. Out of these participants 21 of them removed and replaced it. The results of the study are contrary to a study done by Bali A et al where they concluded that there is a deficit in the level of information regarding peri-implant diseases, so further education is required.¹³ Similarly, in a study conducted by Al-Dwairi ZN, they stated that there is a need to increase the knowledge and awareness of dental practitioners who are practicing dental implantology regarding the potential risk factors that could potentially impact upon implant failures through continuous dental educational programs and workshops.¹⁴

In culmination, 69 of the participants, of this study, were not satisfied with the implant education in their institute and only 14 of them were satisfied. After thorough evaluation, it can be concluded that

with growing popularity of implants, there is a need to introduce basic Implantology at undergraduate level and training programs in implants should be provided or undertaken at postdoctoral level to improve their skills and knowledge and gain confidence to perform the treatment.¹

Conclusion

Dental implants are the most preferred treatment modality for the replacement of missing teeth. Within the limitations of this study, it is concluded that dental colleges of India having active postgraduate programs are moderately equipped with Implantology syllabus and courses. The quality of awareness and education amongst the postgraduate students is not up to a level where they can treat patients single handedly. Although, there are variations in responses, it has made necessary to review and standardize dental implant curricula among institutions. Implantology curriculum in the postgraduate courses should be given more emphasis to improve the clinical skills and knowledge of the students. Postgraduate students should be encouraged to attend implantology clinics from the first year of their post graduation.

Source of Funding – Self

Conflict of Interest - Nil

Ethical Clearance – Approval from S. Nijalingappa Institute of Dental Science & Research, Gulbarga.

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