The trends of endodontic treatment and implant therapy among dental practitioners of Palestine: A survey

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Abstract

Aim: No published data describes the dental implant and endodontic practice profile of general dental practitioners in Palestine. The main aim of the present study was to assess the practice profile of general dental practitioners in Palestine & their attitude towards endodontics and implants.

Methods: A survey of a sample of practicing dentists in Palestine who attended the 4th Palestinian Implantology conference was conducted with a 20 question questionnaire.

Results: 123 participants were general dentists with several years of experience in clinical practice. The Z-test revealed no significant difference between root canal treatments completed by survey respondents presently and 3 years before. The more information dentists obtain from peer reviewed journals, the less likely they were to answer the prognosis of root canal treatment of a necrotic pulp was the same or better than implant therapy, which was statistically significant (p value 0.045).

Conclusion: Appropriate treatment must be based with the patient's best interests and long-term quality of life. In view of the increased clinical acceptance and patient demand for dental implants, there is an associated need to provide further education in this field for both general dental practitioners and undergraduate and postgraduate dental students.

Keyword: Dental implants, Palestine, Endodontics

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Introduction

Preservation of a patient's natural dentition remains an important outcome of oral health. Endodontic treatments have been shown to successfully retain compromised teeth. Tremendous advances have been made in Dentistry over the last few decades. Modern developments like dental implants provide greater choice for patients and clinicians. Dental implant treatments are regarded as predictable procedures if patients are carefully selected and the appropriate surgical technique used. Contemporary dental implant therapy also enables replacement of missing teeth that cannot be replaced by using conventional fixed bridges. The dentists have evolved as personified smile designers for many. The several years of training, clinical exposure and continuous academic and clinical updates have given them the ability to rise to situations for creating perfect smiles. Several practitioners advocate the extraction of teeth followed by implants over the conservative management of carious teeth with endodontic therapy. Implant appears to provide an effective replacement for missing teeth with relatively low postoperative complications when performed by a skilful and experienced dentist. Therefore, the decision between a root canal therapy and implant treatment is a commonly occurring dilemma in practice.

In Palestine, a number of general dental practitioners provide dental implant treatment. No published data describes the dental implant and endodontic practice profile of general dental practitioners in Palestine. The main aim of the present study was to assess the practice profile of general dental practitioners in Palestine& their attitude towards endodontics and implants. Our study design involves a survey of a sample of practicing dentists in Palestine who attended 4th Palestinian Implantology conference.

Materials and Methods

After obtaining approval from the Institutional Ethics Committee for a set of twenty questions for the survey, of which 16 questions were adapted from a study conducted by Stockhausen R et al.[1] (Table 1). Written informed consent was obtained from all practitioners who expressed their willingness to participate in the survey. Questions evaluated both their perceptions of endodontic and implant treatment prognosis as well as their current and projected utilization. Also the sources of information upon which these opinions are based were assessed. The final number of dentists surveyed was 123.

Statistical Analysis

All responses were numerically coded and entered into a data base and statistical analysis was done (SPSS version 17). Frequency analysis and Z test was done. $P<0.05$ was considered as statistically significant.

Results

All the 123 participants were general dentists with several years of experience in clinical practice(Table 2). The years of experience of the practitioner was asked and coded as follows: 0-5 years was coded as 1, 6-9 years of experience was coded as 2, and experience greater than 10 years was given a code of 3. 42 participants had only less than or equal to 5 years of experience, 60 participants had more than 5 years of experience but less than 10 years, while 21 participants had more than 10 years of experience.

Three questions compared the endodontic treatment to dental implants. The response was to be marked either as Much Better, Better, Same, Worse, or Much Worse. The codes were assigned as 1 to 5 for each of the response in the respective order. The first among the 3 questions was: compared with implant therapy, what do you feel is the prognosis of root canal treatment with a vital pulp? 79 participants responded as "much better", while the remaining 44 opined as "better". The second question was: compared with implant therapy, what do you feel is the prognosis of root canal treatment with a necrotic pulp? 50 participants favoured implants over RCT for treating necrotic pulps, 20 participants felt that the prognosis of root canal treatment with a necrotic pulp is much better than implants, 32 were of the opinion that RCT is better when compared to implants, and only 21 said that the results were same for both RCT and implants for a necrotic pulp. The third question evaluated whether with implant therapy the prognosis of root canal retreatment is much better, better, same, worse, or much worse? None of the participants felt that the prognosis of root canal retreatment was much better or much worse when compared to implants. 101 participants supported by suggesting that retreatment is better than implants, while 22 opined that the results are same and comparable to implant therapy.

Two questions focused on the source of information on implants and endodontic therapy. 10 participants opined that they learnt about implants from peer reviewed journals, 93acknowledged the specialist who taught them implants, while other 20 opined that they obtained information through conferences and trade fairs and their dental schools.52 participants said that they learned RCT from their dental schools, while 60 participants said that they got the information from their consultant specialist. 11 participants supported the peer reviewed journals which provided that information.

The source of information was found to be predictive of survey responses among dentists. The more information dentists obtain from peer reviewed journals, the less likely they were to answer the prognosis of root canal treatment of a necrotic pulp was the same or better than implant therapy. These findings were statistically significant (p value 0.045).

Participants were asked about the choice of the person to place the dental implant. 40 participants confided in oral surgeon's skill to place implants, 7 participants thought that a prosthodontist or periodontist, 37 participants believed an implantologist would do the job better that a general dentist in placing the implant for the patient. While 39 thought that a general practitioner is enough to take up the work.

Two questions were asked on the attitude of the practitioners towards treatment as: Endodontic treatment of a salvageable or restorable tooth would provide a better outcome than an extraction and a dental implant? And endodontic retreatment of a failing root canal in a restorable tooth is preferable to extraction and a dental implant? The responses were charted as strongly agree, agree, undecided, disagree, and strongly disagree. The codes were assigned as 1 to 5 respectively for the responses. 72 participants agreed saying endodontic treatment is better than implant for a salvageable or restorable tooth, while 32 participants strongly agreed and 19 participants could not decide as to agree or disagree to a greater extend. Also, 62 participants agreed to prefer endodontic retreatment over extraction and implants in a failing RCT treated tooth, 30 participants strongly agreed, while 31 participants differed to give an answer.

The knowledge of the participants on the published data was assessed. They were asked to opine on the view that the criteria used to determine a successful root canal treatment are the same as criteria used to determine a successful implant treatment. The responses were charted as strongly agree, agree undecided, disagree, and strongly disagree. The codes were assigned as 1 to 5 respectively for the responses. Although no participant strongly disagrees to this point, 49 participants could not opine on this view. 44 agreed to this view and 30 had strong agreement in this regard.

The subsequent number of questions targeted the practice quotient of the General Dentists. They were asked on the average number of root canals they performed per month three years ago, and compared them with the average number of root canals they do in a month now. The codes given for each was as follows: not any(1), upto 10 cases (2), 11-20cases (3), 21-30 cases (4),more than 30cases a month (5). 80 participants said that on an average they had performed around 10 RCTs per month 3 years ago, 32 participants conveyed that they could perform around 30 RCTs, while 11 participants said they used to do more than 30 RCTs per month. On the contrary, there was 1 participant who do not perform any RCT now a days. 69 participants reported that they do up to 10 RCTs per month, 33 participants said the number of RCTs they perform a month goes upto 20, and 20 participants conveyed that they performed more than 30 RCTs per month. The Z-test revealed no significant difference between root canal treatments completed by survey respondents presently and 3 years before.

The dentists were asked to mention the number of cases for endodontics they refer to a specialist now. The same codes of 1, 2 and 3 were used against responses

ticked as 0, up to 10, more than 10 respectively. Majority of the participants (64) no longer refer any RCTs to specialist. 47 participants reported to refer upto 10 cases per month, while 12 participants referred more than 10 RCTs to specialist.

Dentists were also asked on the average number of implants they performed per month three years ago, and compared them with the average number of implants they do in a month now. The codes given for each was as follows: not any (1), up to 10 cases (2), 11-20cases (3), 21-30 cases (4), more than 30cases a month (5). 81 participants said that they never performed any implant therapy 3 years ago, while 30 participants did up to 10 implants per month 3 years ago. There were only 12 participants reported to perform more than 30 implants per month 3 years ago. Currently 50 participants said that they perform up to 10 implants per month, 20 reported as around 20 cases per month, 12 said that they did around 30 cases per month, while only 12 participant said they did more than 30 per month. This shows there is a tremendous increase in number of cases for implant therapy over the years, and that more number of dentists are into practising dental implants.

Answers were sought for the number of implants they refer to other dentists 3 years ago per month. The responses were coded as not any (1), up to 10 cases (2), 11-20cases (3), 21-30cases (4), more than 30 cases(5). 3 participants said that they had more than 20 cases to refer, 74 participants said that they used to refer up to 10 implants per month to the specialist 3 years ago. 46 said that they had no cases to refer to specialist 3 years ago. Dentists were also asked on the number of implants they refer to specialists per month now, and the same codes were assigned. 69 participants said that they do not refer any case to specialist, while 37 reported to refer up to 10 cases, and 17 reported to refer more than 10 cases.

The importance of role of endodontics in future dentistry was asked to all participants. The responses were charted as much less, less, about the same, more and more much. The codes were assigned as 1 to 5 respectively for the responses. 60 participants believed that endodontics will have more role in dentistry in future. 40 thought that endodontics will play the same role as it has in the present times, while 11 said that endodontics will have less role and 12 opined that it will be much less in the future.

Finally, a comparison on the amount of information the participants receive on endodontics compare to the amount of information they receive on implants was checked. The responses were charted as much less, less, about the same, more and more much. The codes were assigned as 1 to 5 respectively for the responses. 52 participants pointed out that they received less information on endodontics, while 21 commented that the information was much less when compared to implants, 22 had the view that they receive same information on both the subjects and 18 participants said they had more, and 10 commented that they receive much more information on implants when compared to RCT.

Table 1

1. You are?
2. Years of experience in clinical practice?
3. Compared with implant therapy, what do you feel is the prognosis of root canal treatment with a vital pulp ?
4. Compared with implant therapy, what do you feel the prognosis of root canal treatment with a necrotic pulp is?
5. Compared with implant therapy, what do you feel the prognosis of root canal retreatment is?
6. From where have you obtained information regarding implant treatment outcomes?
7. From where have you obtained information regarding endodontic treatment outcomes?
8. If you decided that a patient needed an implant, who would you prefer place the implant?
9. Do you think that endodontic treatment of a salvageable or restorable tooth would provide a better outcome than an extraction and a dental implant?
10. Do you think endodontic retreatment of a failing root canal in a restorable tooth is preferable to extraction and a dental implant?
11. In published studies, are the criteria used to determine a successful root canal treatment the same as criteria used to determine a successful implant treatment?
12. On an average, how many root canals have you performed per month 3 years ago?
13. How many root canals have you perform per month now?
14. How many root canals do you refer to specialists per month now?
15. On an average, how many implants have you performed per month 3 years ago?
16. How many implants do you perform per month now?
17. How many implants did you refer to other dentists 3 years ago per month?
18. How many implants do you refer to specialists per month now
19. How does the amount of information you receive on endodontics compare to the amount of information you receive on implants?
20. Compared to present times, what do you think the importance of the role of endodontics in dentistry will be in the future?

Table 2: Result

	Questions	Parameters and its frequency distribution (%) (N= 123 General Dentists)				
1.	Years of experience	0-5 years 42	6-9 years 60	More than 10 years 21		
2.	Compared with implant the prognosis of root canal treatment with a vital pulp?	Much better 79	Better 44	Same 0	Worse 0	Much worse 0
3.	Compared with implant the prognosis of root canal treatment with necrotic pulp?	Much better 20	Better 32	Same 21	Worse 50	Much worse 0
4.	Compared with implant the prognosis of root canal retreatment?	Much better 0	Better 101	Same 22	Worse 0	Much worse 0
5.	Source of information on endodontic therapy?	Peer reviewed journals 10	Specialists 93	Conference /trade fair/ school 20		
6.	Source of information on dental implants?	Peer reviewed journals 11	Specialists 60	Conference/ trade fair/	Dental school 52	
7.	Choice of the person to place the dental implant?	General dentist 39	Oral Surgeon 40	implantologist 37	Endodontist 0	Prostho/periodontist 7
8.	Endodontic treatment of restorable tooth has outcome than implant?	Strongly Agree 32	Agree 72	Undecided 19	Disagree 0	Strongly Disagree 0
9.	Endodontic retreatment of failing root canal in restorable tooth is preferable to implant?	Strongly Agree 30	Agree 62	Undecided 31	Disagree	Strongly Disagree
10.	Criteria used to determine a successful root canal treatment are the same as that used to determine a successful implant?	Strongly Agree 30	Agree 44	Undecided 49	Disagree 0	Strongly Disagree 0
11.	no. of root canals performed per month 3 years ago?	Not any 0	Up to 10 80	11-20 0	21-30 32	More than 30 11
12.	no. of root canals performed now per month?	Not any 1	Up to 10 69	11-20 33	21-30 0	More than 30 20
13.	No. of endodontic cases referred to specialist now?	Not any 52	Up to 10 38	More than 10 10		
14.	Average no. of implants performed per month 3 years ago?	Not any 81	Up to 10 30	11-20 0	21-30 0	More than 30 12
15.	Average no. of implants performed per month now?	Not any 29	Up to 10 50	11-20 20	21-30 12	More than 30 12
16.	Implants referred to other dentists 3 years ago/ month?	Not any 46	Up to 10 74	11-20 14	21-30 3	More than 30 0
17.	No. of implants referred to specialists/ month now?	Not any 69	Up to 10 37	11-20 17	21-30 0	More than 30 0
18.	Role of endodontics in future?	Much less 12	Less 11	Same 40	More 60	Much more 0
19.	Information on endodontics compared to that on implants?	Much less 21	Less 52	Same 22	More 18	Much more 10

Discussion

This survey focuses on the changing trends in general practice, and the attitude of general dentists towards endodontic therapy and dental implants. The number of questions to be asked was limited to 20 so as to get maximum response in participation. Respondents will look at the length of the questionnaire to gauge an approximate time of how long the survey will take.[2,3]

According to this survey, dentists feel the prognosis of root canal therapy of a tooth with a vital pulp is still superior to that of an implant. However, prognosis of implant treatment was felt to be better than root canal treatment of a necrotic pulp or retreatment. This is in contrast to a survey of dentists in Virginia in 2007.[4] We have chosen to conduct survey among dentists who participated in a conference coming from different cities Palestine. The response could show a shifting trend if conducted among dentists from the same locality. 82% participants supported by suggesting that retreatments are better than implants. This is in accordance with the survey conducted by Packer et al.[4].

Participants were asked about the choice of the person to place the dental implant. Participants confided in oral surgeons and implantologists skill to place implants, 7 participants thought that a prosthodontist or periodontist would do the job better that a general dentist in placing the implant for the patient. While 39 thought that a general practitioner is enough to take up the work. This result might be due to the belief and skills of the participants as general dental practitioners in placing implants and they refer advanced cases to specialists from different specialities to manage.

32.5% and 30% survey respondents chose Oral Surgeons and implantologist respectively as their preferred referral choice for placing dental implants. While only 5% chose a prosthodontist or periodontist for the purpose. This is in contrast to a survey by Potter[5]where they found 57% of their respondents support endodontists placing implants. None of our survey participants voted for an endodontist to place the implant, which in turn underlines the fact that currently Endodontists represent a small percentage of the specialists placing implants. However, it is unclear whether general dentists would change their referral patterns in the future. The remaining percentage of practitioners chose to place implants by themselves when compared to 3 years ago. This was evaluated through the number of cases that was referred 3 years ago, and the decrease in the number of cases being referred to specialists now. This could be attributed to the knowledge the general dentists acquire through conferences, continuing educational programmes, peer reviewed journals, changing trends in surgical techniques, evolvement of new radiographic modalities like CBCT, the simplification in implant hardware etc.[6-8].

Although the Z-test revealed no significant difference between root canal treatments completed by survey respondents presently and 3 years before, it is evident from the survey that the is increase in the number of cases the participants do. This could be attributed to the increasing awareness among the General public about preserving the teeth and a sense of creating good confident smiles on their faces. It was also noted that majority of the participants no longer refer any case to endodontist. This could reflect the clinical skill they acquired over the years in practice.

Many participants felt that endodontics still hold a good future in dentistry[9-11]. Excellence in endodontics followed by an immediate restoration of equal quality promises to give patients service, function and esthetics for years.

Tremendous advances have been made in Dentistry over the last few decades. Modern developments like dental implants provide greater choice for patients and clinicians. Most of the participants got only less information on endodontics from journals when compared to implants. This represents an area for endodontists to educate the dental community.

Conclusions

Dental schools, as the major provider of formal dental undergraduate and postgraduate training, should play an important role in training dentists to practice endodontics and implant dentistry. In making treatment planning decisions, the clinician must consider factors like economics, the patient's desires and needs, esthetics, potential adverse outcomes and ethical factors. Appropriate treatment must be based with the patient's best interests and long-term quality of life. In view of the increased clinical acceptance and patient demand for dental implants, there is an associated need to provide further education in this field for both general dental practitioners and undergraduate and postgraduate dental students.

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