ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 12, Issue, 08, pp.13316-13318, August, 2020

DOI: https://doi.org/10.24941/ijcr.39374.08.2020

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

SURGICAL PROTOCOL PRACTICED BY DENTAL PRACTITIONERS FOR IMPLANT PLACEMENT IN GUJARAT: ASURVEY

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ARTICLE INFO

Article History:
Received 05th May, 2020
Received in revised form
27th June, 2020
Accepted 14th July, 2020
Published online 30th August, 2020

Key Words:
Implant,
Practitioners,
Survey.

ABSTRACT

Background: Dental implants have been used to replace missing teeth for more than half a century. For successful implant placement, a standardized surgical protocol needs to be established. **Aim:** To present results of a survey to know the surgical protocol and associated materials used by dental professionals in Gujarat for an efficacious implant practice. **Materials and Methods**: A questionnaire was sent to 150 dentists. The survey specifically targeted dentists who place dental implants. The questionnaire requested information regarding the protocol adapted by dentists during surgical phase of implant placement. **Results**: Results from 132 respondents were available for analysis. 10 surveys were partially completed and 8 practitioners did not respond and hence were not included in the results. **Conclusion**: Most of the dentists followed the well documented techniques which have been documented in the literature. These techniques may be useful in reducing errors in placement of dental implant and increasing implant success rates.

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Citation: ***Dr. Neeta V. Bhavsar, Dr. Swapna Patki and Dr. Rachana Gaonkar.*** **2020.** "Surgical protocol practiced by dental practitioners for implant placement in Gujarat: ASurvey", *International Journal of Current Research*, 12, (08), 13316-13318.

INTRODUCTION

Dental implants have been used to replace missing teeth for more than half a century. They are considered to be an important contribution to dentistry as they have revolutionized the way by which missing teeth are replaced with a high success rate.[1] Recent advances in implant designs, graft materials and surgical protocols have played a significant role in making implant as predictable treatment option.[2] The success of dental implants depends on osseointegration. To achieve successful osseointegration, implant stability is a pre-requisite. Implant stability is influenced by: implant (material, design, and dimensions of fixture), patient (quality and quantity of bone) and the operator (surgical technique). Many studies have been performed to determine the influence of implant material and bone quality on the success of dental implants, however only a few of them analyse the surgical technique. As the demand for implant treatment has increased tremendously, there is a need to establish a standardized surgical protocol for successful implant placement

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Therefore, the objective of this survey is to know the surgical protocol and associated materials used by dental professionals in Gujarat (India) for an efficacious implant practice.

MATERIALS AND METHODS

Aquestionnaire was made, consisting of 15 questions (Fig 1). The questionnaire was prepared by the authors after discussing it with specialists of the field. Dental practitioners practicing in Gujarat were included in the study. Aweb-basedsurvey was generated using google forms. The link to this questionnaire was sent to 150 randomly selected dentists. The survey specifically targeted dentists who place dental implants; those who reported that they did not place dental implants were excluded from the study. The questionnaire requested information regarding the protocol adapted by dentists during surgical phase of implant placement. Response format included choices in which subjects chose one response from a provided list of options. The data thus obtained formed the basis for assessment (Table 1 and Fig 2).

RESULTS

A total of 132 respondents completed the survey. 10 surveys were partially completed and 8 practitioners did not respond and hence were not included in the results. The findings for each of the survey are listed below.

QUSTION NO	QUESTION	OPTION A	OPTION B	OPTION C
	Do you place dental implants?	Yes	No	
1	Do you prefer to place dental implants in diabetic patients ?	Yes	No	Depends on the case
2	Do you make study models for planning dental implants?	Yes	No	Depends on the case
3	Do you perform clinical evaluation of the implant site before placing dental implants?	Yes	Evaluate only radiographs	Both
4	Which radiographic examination method do you commonly use for planning implant surgery?	Orthopantomogram (OPG)	Cone beam computed tomography (CBCT)	Intraoral periapical radiograph (IOPA)
5	Do you make the patient perform pre procedural rinse with Chlorhexidine gluconate mouthwash before implant surgery?	Yes	No	Use any other oral rinse
6	Which surgical protocol do you prefer?	Immediate implant placement	Delayed implant placement	Depends on the case
7	Do you use surgical guide/template for implant placement in single anterior tooth?	Yes	No	Depends on the case
8	Do you use surgical guide/template for implant placement single in posterior tooth?	Yes	No	Depends on the case
9	What type of flap design do you prefer for implant placement?	Flapped implant placement	Flapless implant placement	Depends on the case
10	Are you aware about additional surgical procedures performed to enhance successful implant placements such as bone grafting and sinus lift procedures?	Yes	No	Not aware but would like to know about it.
11	What type of bone graft material do you prefer?	Autograft	Alloplast	Xenograft
12	Do you practice sinus lift surgery in cases of insufficient bone height in maxilla?	Yes	Do not practice	Refer patient to a specialist
13	If yes, which technique do you prefer	Direct sinus lift technique	Indirect sinus lift technique	Depends on the case
14	Do you perform ridge augmentation procedures in patients with insufficient bone quantity?	Yes	Don't place implants in patients with poor residual ridge.	Refer to specialist
15	What type of loading protocol do you follow?	Immediate loading	Delayed loading	Depends on the case

Fig 1. Questionnaire

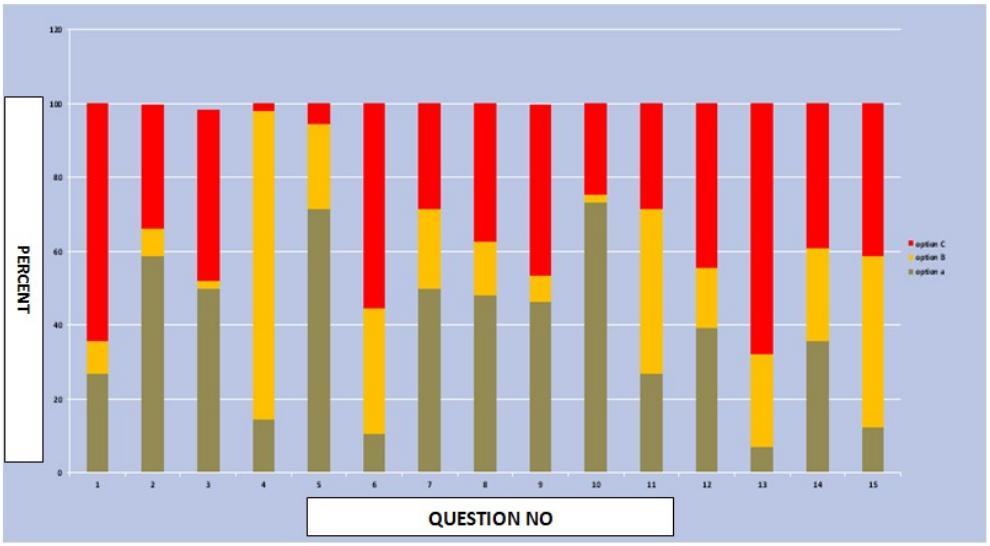


Fig 2. Response given by practitioners to questions

Table 1. Response given by dental practitioners (%)

QUESTION NO	OPTION A	OPTION B	OPTION C
1	26.8	8.9	64.3
2	58.9	7.1	33.9
3	50	2	46.4
4	14.3	83.9	2
5	71.4	23.2	5.4
6	10.7	33.9	55.4
7	50	21.4	28.6
8	48.2	14.3	37.5
9	46.4	7.1	46.4
10	73.2	2	25
11	26.8	44.6	28.6
12	39.3	16.1	44.6
13	7.1	25	67.9
14	35.7	25	39.3
15	12.5	46.4	41.1

In the present survey, 26.8% practitioners suggested placing dental implants in diabetic patients, 8.9% denied placing implants and 64.3% suggested placement of dental implants depending on the case. Majority of the practitioners preferred making study models for planning dental implants. Both clinical and radiographic evaluation were considered important for implant site evaluation before placing dental implants. Among the radiographic evaluation, CBCT was the most commonly used modality for planning dental implants.

71.4% practitioners used Chlorhexidine gluconate mouthwash before implant surgery, 23.2% did not use and 5.4% used other oral rinse. With various surgical protocols practiced for placing dental implants, majority of the practitioners preferred immediate or delayed implant placement depending on the case. Surgical guide or template are essential for proper angulation of implant placement. Most of the practitioners preferred using surgical guide or template while placing anterior and posterior implants.

Regarding the flap design for implant placement, 46.4% practitioners preferred flapped implant placement, 7.1% practitioners preferred flapless implant placement and 46.4% practitioners preferred flapped and flapless implant placement depending on the case. Alloplast was the most preferred bone graft material followed by xenograft and autografts. The survey highlighted that dentists are still reluctant to use the sinus lift surgery as only 39.3% practitioners performed sinus lift surgeries and majority of them referred patients to a specialist. Regarding the technique for sinus elevation, most of the practitioners performed direct or indirect sinus lift procedures depending on the case. Ridge augmentation procedures were performed by 35.7% practitioners performed ridge augmentation procedure, whereas 39.3% referred to a specialist. Regarding the loading protocol, most of the practitioners preferred delayed loading protocol.

DISCUSSION

Implant therapy has become an integral part of today's daily dental practice. Appropriate knowledge of diagnostic and therapeutic options with dental implant therapy is therefore mandatory for dental practitioners.[3]Since the discovery of osseointegration, changes in implant-design, surface configuration, surgical techniques, restorative modalities, improvements in diagnostic techniques and pre-surgical planning tools have occurred. This survey was carried out to analyse the most preferred techniques used by the dentists in an implant retained restorations.[4] In the present survey, most of the dental practitioners preferred placing dental implants in diabetic patients depending on the case. Valero et al suggested that certain special considerations should be taken into account for the placement of implants in diabetic patient. A good control of plasma glycaemia, together with other measures, has been shown to improve the percentages of implant survival in diabetic patients.[5] The survey conducted, showed that CBCT was found to be a popular technique and mostly preferred by practitioners. A study by Sahota stated that CBCT being three-dimensional provided detailed information that two-dimensional radiographs cannot offer, which aids in precision to further improve the entire implant process.[6] The present survey showed that most of the practitioners asked the patients to perform pre procedural Chlorhexidine rinse. A study by Lambert et al concluded that rinsing preoperatively with chlorhexidine reduces microbial complications following implant placement.[7] It has been seen that accurate placement of implants has been best achieved clinically with the help of a surgical guide. A, randomized control trial (RCT) by Arisan et al deduced, that highest probability of positioning error is associated with the use of freehand method and utilizing computer-aided methods may alleviate this.[8] Majority of practitioners preferred placement of delayed or immediate implant depending on the case followed by most of the practitioners who preferred delayed implant placement. Cosyn et al in a systematic review stated that immediate implant placement demonstrated higher risk for early implant loss than delayed implant placement.[9] Among the surgical techniques, practitioners preferred a two-stage surgical protocol. Gheisari et al in his study stated that apart from providing better esthetic and function for dental implants, there was no significant difference between the one stage and two stage surgical approaches concerning the marginal bone loss.[10] The survey highlighted that dentists performed direct and indirect sinus lift procedures depending on the case followed by indirect sinus lift procedures. Pal et al in his comparative study suggested that indirect sinus lift can be recommended when more than 6 mm of residual bone height is present and an increase of 3-4 mm is expected. In case of more advanced resorption direct method through lateral antrostomy has to be performed. Both sinus elevation techniques did not seem to affect the implant success rate.[11]

Conclusion

Implant dentistry is growing and gaining wide acceptance as a treatment option for patients with missing teeth. It can be concluded from the survey that most of the dentists follow the well documented technique, which have been documented in the literature, thus delivering the best to their patients. As this survey was conducted in a limited group of dental practitioners, with limited amount of information extracted, further surveys are needed to know the level of implant dentistry practiced.

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