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Inter oral surgeon's estimation and performance of dental implant as a restoration of oral occlusal integrity (a survey study questionnaire)

"Estimation and performance of dental implants survey study questionnaire"

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ABSTRACT

Dental implant is considered a new alternative method in restoring the esthetic and function of lost teeth in oral cavity, accurate work could be done in a scientific manner by right planning of the need and available material and methods with appropriate techniques, it is a collective efforts to do a stable, less failure and high success rate,a questioner done with collaboration ofdifferent graduation oral surgeons for gathering nearly a lot of experiences of them since many years.

Material and Methods: Fifty oral surgeons were collected their data and 20 points closed-ended questionnaire with single answers was prepared to gather data regarding to dentists 'opinions about multiple dental implant system, radiographical assessment, surgical procedure, prosthetic procedure, causes of success and not a success of implant, contraindications of this method of reconstruction and preference to restore occlusal integrity after extraction.

Results: This questionnaire was answered by 46 specialists, 3 general practitioners and 1 senior house officer worked in different centers and organizations, the number of implants that was worked by interviewed surgeons ranged from 2-2000 implants, number of failure of implants was ranged from 0-30 implants. All answers were significant except for type of gingival incision, preference of choice of type of restoration and success and failure causes as *P*-value significant in 0.05.

Discussion: Alertchoice of cases, appropriate treatment plan with follow-up of surgical procedure and prosthetic pattern techniques are the meansof success as it is highly sensitive technique, as an immediate implant reduced treatment time and surgical visits makes it a treatment of choice over the conventional approach of tooth extraction and waiting up to 4-6 months'primary stability of implants is commonly considered as a key factor for achieving successful osteointegration'mainlyoften used four considerations for achievement of implant are implant height, around-implant supple tissue, suprastructuers, and patient's personalevaluation,alsoesthetics is very obligation forenclosure of further aspects inachievement criteria judgment for osseointegratedimplant reconstruction.

Key words: estimation, performance, dental implant, occlusal integrity.

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INTRODUCTION

As a consequence of persistentdo research, investigativekits, treatment scheduling, implant devises; equipment, and performance, anticipated success is at this time anactuality for the treatment of many demanding clinical conditions[1]. Osseointegrated dental implants considered one of the latest modalities of replacement lostdentition in completely or incomplete edentulous patients and restore occlusal integrity [2,3,4].perfunctorypossessions of osteal tissue at the implant locationandengagement of implant to bone were determined the implant stability, as a consequence the density of bone, surgical performance and plan of implant were effect on principalsteadiness of implant at the point in instance of surgical procedure[5,6]

Which may be a marker of durableprospects for the achievement of implant-supported prosthesis [7]. Surgical course of action of osseointegrated implants has endured transformfrom time whencommencement of usage of dental implants. In the surgical step of implant placement an incision is made in the mucosa then flap is reflected to show the underneathosteal tissues, after implant was put on, flap is sutured back [8,9].

Universally, dental implants are prepared from titanium.This material acts as stable, useful sandwich between osteal tissue and surface of implant[10].There is evidence that imaging plays a crucial role in regulating decisionsabout implant handling is itsuitable for that patient, and to know the exact position of implant in relation to very important anatomical structures such as the inferior alveolar nerve (IAN) and maxillary antrum, finding of possibleirregularities,evaluation of osteal tissue quantity such as the height of alveolar process, width buccolingually and angulation[11, 12].

A lot of imaging selectionsare presentlyexisting, like intra-oral radiograph, topography, computed tomography (CT), cone beam CT (CBCT), conventional extra-oral radiographyand magnetic resonance image (MRI) [13]. Regarding to insertion of implant, the widely held implant system have five essentialstepladders for insertion.Flapless surgical procedure is alternativeprocedure, where a tinycuff of tissue (the width of the implant) is detached for implant positionother than mounting flaps.Primary, we start in elevatedvelocity drilling, after reflecting the gingival tissue and using a surgical stent ifrequired.Then at low downvelocity drilling,the directpuncture is lengthened by using gradually increasing drills diameters. Precautionavoidinjure the osteoblast or osteocytes by excessive heat.

The screw of implant is positioned and may be self-tapping, or tapped with an implant analog. The softtissue is adaptedaround the whole implant to supply a broadgroup of well tissue in the region of the healing abutment [14,15,16]. The approaches to placing dental implants after tooth lost are different; they are either instantaneous post-extraction implant placement or delayed [17,18]. Prosthodontic design plays anessential role to achieve results that satisfies both the patient and the clinician.[19, 20].

The aims of the present questionnaire are to estimate the preferred method and technique in working dental implant.

MATERIALS AND METHODS

A 20 points closed-ended questionnaire with single answer was prepared to collect data regarding to dentists ‘opinions about multiple dental implant system, radiographical assessment, surgical procedure, prosthetic procedure, causes of success and malfunction of implant, contraindications of implant and preference of restore occlusal integrity after extraction as shown in (Figure 1). Each question has multiple choice answers. The informationrecordswere analyzed by SPSSsoftware program version 14.0 and the frequencies were calculated for each choice of all questions. *P*-value was obtained by Chi-Square test to compare if there was any significant between answers in each question.

Inter oral Surgeons estimation and performance of dental implant as a restoration of oral occlusal integrity (a survey study questionnaire)

1-What is your degree?
( ) specialist
( ) general practitioner
( ) senior house office

2- How many implants you had been done?
( )

3- What is the type of incision you preferred?
( ) Crestal
( ) envelope
( ) other

4. Which radiographical examination is most you preferred in the dental implant assessment?
( ) Panoramic radiography
( ) Cone beam Ct scan
( ) Periapical radiography

5. What are the interesting factors when you choose the radiographic examination?
( ) Cost
( ) Measurement precision
( ) Availability
( ) Low radiation dose
( ) Broad coverage

6-What is the type of fixture you preferred to use?
( ) ferident
( ) dentium
( ) leader
( ) other

7. What is the type of irrigation you preferred to use as coolant agent?
( )

8. What is the type of suture material you preferred to use for closure wound?
( )

9- What is the type of gingival incision in gingival former you preferred to use?
( ) scalpel
( ) punch

10- Do you take radiograph when using transfer coping?
( ) yes
( ) No

11. What is the technique that you preferred for impression?
( ) closed
( ) open

12-What is the type of impression material you preferred to use?
( )
( )

13- Do you take radiograph when complete the work till prosthesis?
( ) yes
( ) No

14. After extraction of tooth, what you preferred?
( ) immediate insertion
( ) Traditional

15. How you can estimate the success of implant, on your opinion?
1.
2.
3.

16. How you can estimate the failure of implant, on your opinion?
1.
2.
3.

17- How many failure cases you faced in clinical work?
( )
( )

18. On your opinion, what is or are the cause of failure?
( ) Surgical part
( ) prosthetic part
( ) patient care

19. On your opinion, what is the contraindication of implant?
( ) systemic disease
( ) smoking
( ) drinking
( ) bad oral hygiene
( ) low socioeconomic state

20. How you prefer for restoring missing teeth and occlusal integrity?
( ) Implant
( ) Crown and bridge
( ) Removable prosthesis (partial or complete)

(Figure 1): The questionnaire

Table (1): Frequencies of questionnaire

Q: 3	Fr.	Q:4	Fr.	Q:5	Fr.	Q:6	Fr.	Q: 7	Fr.	Q:8	Fr.
Crestal	27	Panoramic	37	Cost	10	Ferident	3	Normalsaline	47	Black silk suture	39
Envelop	13	Cone beam Ct scan	18	measurement	40	Dentuim	27	Chlorhexidine.	2	Nylon suture	5
Other	13	Periapical radiograph	8	Availability	5	Leader	12	Distill water	4	Vicryl suture	3
				Low radiation	7	Other	16				
				Broad coverage	4						
Q:9	**Fr.**	**Q:10**	**Fr.**	**Q: 11**	**Fr.**	**Q:12**	**Fr.**	**Q:13**	**Fr.**	**Q:14**	**Fr.**
Scalpel incision	27	Yes answer	18	Closed imp.	38	Silicon	48	Yes answer	42	Immediate tech.	22
Punch incision	24	No answer	34	Open imp.	16	Alginate	1	No answer	11	Traditional tech.	31
Q: 15	**Fr.**	**Q:16**	**Fr.**	**Q:18**	**Fr.**	**Q:19**			**Fr.**	**Q: 20**	**Fr.**
Stability	21	Mobility	37	Surgical part	32	Systemic dis.			26	Implant	47
Esthetic	18	Peri-implantitis	15	Prosthetic part	26	Smoking			10	Crown &bridge	9
Function	31	Discharge	7	Patient care	30	Drinking			5	Removable pros.	7
		Rejection	2			Bad oral hygiene			39		
		Pain	7			Low socio-economic			17		
		Bone resorption	4			Non			6		

RESULTS

This questionnaire was answered by 46 specialists, 3 general practitioners and 1 senior house officer (Q:1) worked in different centers and organizations. Regarding to the number of implants that was worked by interviewed surgeons; it wasranged from 2-2000 implants (Q:2), in other hand number of failure of implants was ranged from 0-30 implants (Q:17). The frequencies of all answers for each question were analyzed and recorded as shown above in (Table 1).

For recognizing the significant among answers in each question,Chi-Square test was employed as shown in (Table 2). All answers were significant except questions 9,14,15,18 as *P*-value significant in 0.05*

Table (2): Chi-Square test for questionnaire

No. of questions and*P*-value for each one							
Q:3	0.025*	**Q:8**	0.000*	**Q:13**	0.000*	**Q:19**	0.000*
Q:4	0.000*	**Q:9**	0.674	**Q:14**	0.216	**Q:20**	0.000*
Q:5	0.000*	**Q:10**	0.027*	**Q:15**	0.137		
Q:6	0.000*	**Q:11**	0.003*	**Q:16**	0.000*		
Q:7	0.000*	**Q:12**	0.000*	**Q:18**	0.727		

P-value was significant at 0.05

DISCUSSION

Previously, there was a theorysupposed that Osseointegrated implants positioned in appropriatelocations using flapless proceduresufferconsiderablyfewermarginal bone loss compared tothose positioned using conventional surgical flap technique. Adescription may be derived from the factflaplesssurgical procedure permitsmallest amountof disturbance of periimplanttissues, in that way reducing changes in marginalosteal tissue levels, probing depth, and inflammation signs in comparing to flap surgical procedure[21].Other study found that the flapless operationconserve circulation of the periimplant tissues andhastenimprovement, in this manner allowing the patientto begin againordinary oral sanitationprotectioninstantaneouslyafter implant placement[22].Owing to advantages of flapless approachmany authors found in their researches the flapless approach causes minimal surgical disturbance, ache, and inflammation since soft tissue upset is really reducedbut this technique is not generally used because it is a blind surgical technique and underlying bony topography cannot be evaluated, it requires more understanding before it is used[23,24].Regarding to result of this study, there was no considerable results between flap and flapless surgery in implant placement, this agree with many studies although those studies suggested to further researches about this subject because there are a small number of studies comparing the effect of flapless vs. flapped surgical procedure on clinical dimensionscircum dental implants and also the crestal osteal tissue loss circum dental implants placed in healed sites using flapped and flapless methods is analogous[25,26,27,28].One of the most significant technique in assessment dental implant is the radiograph. In this study according to answers of interviewed dentist panoramic radiograph considered the most methods used in radiographical assessment in dental implants comparing to periapical and cone beam computerized tomography. This finding is concedewithKim et al 2011 as panoramic radiograph can be considered a simple, readily available and is an efficient method and low-cost for pre-implant diagnosis and establishing treatment etiquette, and it uses a comparatively low radiation exposure[29].

However, using CBCT is suggestedpresurgical planning in the maxilla and mandible when a structure in an external to internal location needs to be evaluated because this imaging modality supplies external to internal in sequence that cannot be gained from panoramic radiograph and provide 3D information about bone in all dimensions [30,31,32,33]. The Oral ImplantologistsCongress has supported the use of Cone Beam Computed Tomography (CBCT) in dentalimplantologythroughfor providing logically based direction to operator regarding its use as an assistant to conventional imaging modalities, in other hand, the benefits to the patient for each CBCT scan must balance the possiblehazards[34]. Through drilling implant sites, mechanical strength is converted into thermal one resulting in momentaryincrease in temperature of adjacentosteal tissues. When heatreach up to 47°C exceeding one minute prejudices osseointegration, concessionsperfunctory properties of the local osteal tissues and may lead to early implant failure [35].Irrigation with sterilized saline is a fundamentalapproach in the prevention of osteal tissues overheating throughoutthe work in the drilling implant sitesby eradicates heated osteal fragments from the osteotomy and reduces abrasionthroughout drilling, hencecausal to decreased production of the frictional temperature[36]. Our results conceded with Jowan G. et al in which Chlorhexidine Gluconate(CHG) at concentrations of 0.05% is not more efficient than saline as an irrigation solution for minimizing bacteria[37].Suturing is one of the considerable clinical stage for successful implant, so the evaluation of different types of suture materials is regarded a predominantly important for a perfect closure of wound so as no infection can affect the prognosis of implant [38]. Our results agree with many studies in using black silk suture in closing the wound.Hupp and other authors said, the character of the black silk makes it simple to secure with excellent knotting property, and is well tolerated by the patient's sense in which the cut ends of the suture be apt to be flat and are not pointed. Black silk suture braided, coated with wax to reduce capillary action. Although tissue reaction is more as it is a foreign protein, in spite of this widely used because of easy availability and is

cheap [38,39, 40]. The main goal of an impression implant restoration is to preciselycorrelate an analogue/abutment of the implant to the other components in the alveolar bony tissues [41]. The exactness of impression is pretentious by the selection of impression tray, impression method and type of impression material, number, angulation of implants [42,43]. Open and closed trays are the most common techniques. In some situations, closed tray technique is preferable; however, it might be very difficult to place the impression copings into the impression material precisely while in open tray technique, rotation of impression copings is possible during fastening of impression copings into analogs, which may cause the misfit of components[44].In this study, the interviewers prefer using closed technique over open technique which agree with study of Papaspyridakos P et al as they said, the open tray impression coping may bring a some apprehensionandmustbe sure the access of the impression coping screw in order to take away the impressioneasily without any changes in impression details [45].Bulk of impression materials when handled suitably are prepared of getting clinically satisfactory impressions [46]. The correctness of the resultant impressions is reliant to the combination of the impression material and tray employed [47]. As aresult of this study showthat the silicon impression material more preferable than other because this material readilyavailable in market and regarding to other results of many studies impressions made with silicon impression material proved to be additionalprecise than other materials [48, 49,50]. Most advanced way to replace lost teeth is dental implant which is designed to duplicate the natural tooth root and crown of the normal tooth as it isconserve the gingival soft tissue and osteal tissue with no spoil to neighboringteeth [51]. According to frequencies of choosing preferable technique after tooth extraction was traditional loading over immediate loadingbut statisticallyno significant between them,while in restoring occlusal integrity implants more preferover removable prosthesis and crown and bridge.

There was a study showed that immediate implant position with immediate loading may be a practical treatment alternative for cases need earliest replacement of teeth to be removed but it is need professional dental implant team for itscarrying out. Careful case selection, appropriate treatment plan and follow-up of surgical and prosthetic methods are the keys to accomplishment as it is highly sensitive technique[52,53].As an immediate implant reduced treatment time and surgical visits makes it a treatment of choice over the conventional approach of tooth extraction and waiting up to 4-6 months [54]. Primary stability of implants is commonly considered as a key factor for achieving successful osteointegration[55]. Most frequently used four parameters for assessing achievementof implant are implant level, periimplant supple tissue, prosthesis, and patient's subjective assessment [56]. Implant that not successes were shown to be associated to earlier inflammatory troubles, smoking practice, surgical performance[57]. Other study found the insertion of implants in smokers considerably affected the failure percentage, the risk of postoperative infections as well as the marginal osteal tissue loss [58]. Regarding to study of Mohammad D. Al Amri et al showed oral hygiene maintenance reduces periimplant inflammation [59]. Alcohol ingestion may produce aimportantharmful effect on ostealconcentration[60]. Patients who were older than 60 years, smokers, or had a history of diabetes or previous head and neck radiation, or were postmenopausal and on hormone substitute therapy experienced considerably increased implant failure in regard with healthy patients [61]. There was a correlation between success and failure factors for implants with indications, contraindications as when the surgeon inspect the patient. It is necessary to choose patients who do not have local or general contraindications to treatmentthat seemingly prevent conventional dental implant management [62]. In other hand the continued existence rate of dental implants placed in medically compromised patients who experience from controlled systemic illnesses or smoke, as the level of confirmation associated with the implant failure is low down [63].Finally, we want to say most interviewer's surgeons prefer Dentuimsystem over other systems because this system is available in market with suitable price and not costly for the patients.

CONCLUSIONS

Planned and careful estimation of patient selection, type of implant system, radio graphical assessment, surgical procedure step by step, prosthetic procedure including materials selection and technique, causes of success and disappointment of implant, contraindications of using implant and preference to restore occlusal integrity after extraction, all these factors acts together in enhancing the base line of a successful work in performance of dental implant.

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