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KAP On Connective Tissue Grafts in Implant Aesthetics

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ABSTRACT

Restoring extreme loss of bone and soft tissue especially in the aesthetic zone is unpredictable and difficult to manage. The aim of this study is to evaluate the knowledge and awareness of connective tissue grafts in implant aesthetics. A questionnaire of 10 questions is prepared and distributed among the dental practitioners and undergraduate students. Some of the questions include year of study, ideal location to obtain graft, ideal thickness of the graft etc. The results are obtained and tabulated. The knowledge and attitude towards connective tissue grafts in implant aesthetics is poor among the dental practitioners. Due to the lack of knowledge, this can lead to failure in implant or in patient satisfaction. In recent years, the prosthetic rehabilitation of partially edentulous jaws has been increasingly influenced by patients' growing interest and expectation regarding sites of aesthetics priority. Hence gaining knowledge and attitude towards connective grafts in implant aesthetics will help in patient satisfaction as well as success of the implant.

KEY WORDS: CONNECTIVE TISSUE GRAFTING; IMPLANT; AESTHETICS; PATIENT SATISFACTION; KNOWLEDGE.

INTRODUCTION

Dental implants are becoming the most preferred treatment of choice to replace missing teeth, especially if the adjacent teeth are free of restorations. With minimal bone width present, the implant placement becomes a challenge and often results in gingival recession and dehiscence around the implant. (Kassab, 2010) The successful use of dental implants to replace missing teeth has become one of the most popular, exciting, and evolving areas of clinical dentistry. When implants are thought of as a treatment option, treatment planning has become more complex for the dental practitioner, and an interdisciplinary team approach is needed. Failure to demonstrate such an approach might lead to an undesirable implant complication. Both the quantity and the quality of the alveolar bone must be assessed when an implant placement is considered.

The anterior maxilla region is an anatomically difficult region for dental implantation. Soft and hard tissue augmentations are often needed to restore the affected site. A sufficient bone density and volume is needed for stable placement of dental implants. (Buser, Martin and Belser, 2004) (Zhang, Skrypczak and Weltman, 2015) (McAllister and Haghighat, 2011) In addition, aesthetic outcome is an important parameter for the patient. The main aesthetic objective for patients is to maintain a harmonious gingival contour with intact papillae and without abrupt changes. Placement of dental implants

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in the anterior maxillary region can be achieved by different methods.(Belser et al., 1998) The optimal method is dependent on anatomical parameters such as bone volume, bone density, alveolar crest position, adjacent teeth, and gingival morphology.

The success in rehabilitating the stomatognathic system including the aesthetics depends on the optimization of the algorithms specific to the pre-prosthetic, pro-implant and prosthetic stage. However, the anatomical limits, occlusal space management, occlusal stability and periodontal status must be considered prior to the planning of the esthetic parameters for the future prosthetic restoration (Forna and Agop-Forna, 2019) Aesthetic outcomes are important for successful dental implantation which are determined by the smile and lip line. Previously our department has published extensive research on various aspects of prosthetic dentistry ('Evaluation of Corrosive Behavior of Four Nickel–chromium Alloys in Artificial Saliva by Cyclic Polarization Test:An in vitro Study', 2017; Ganapathy, Kannan and Venugopalan, 2017; Jain, 2017a, 2017b; Ranganathan, Ganapathy and Jain, 2017; Ariga et al., 2018; Gupta, Ariga and Deogade, 2018; Anbu et al., 2019; Duraisamy et al., 2019; 2019; Ashok and Ganapathy, 2019;Varghese, Ramesh and Veeraiyan,), this vast research experience has inspired us to do research on connective tissue graft in implant aesthetics. The aim of the study is to evaluate the knowledge attitude and practise on connective tissue used in implant aesthetics.

MATERIAL AND METHODS

A questionnaire of 10 questions is prepared and are distributed among the undergraduates. Some of the questions involved years of study, the different types of grafts used in implant aesthetics, the conditions requiring grafts. The results are obtained and tabulated.

RESULTS AND DISCUSSION

A total of 100 students participated in this study and answered the survey questions. The knowledge and awareness among the students based on the success rate of connective tissue grafts compared to other tissue grafts were positive (65%) (figure 1). The most common answer for the aesthetic considerations of the connective tissue grafts compared to the other tissue grafts by the students was not sure (45%) (figure 2) The most common answer for the ideal thickness of the connective tissue graft was found to be 1.5-2mm (41.67%) (figure 3). The most common answer received for the ideal location of an implant connective graft is 5-6mm to the gingival margin of the palatal aspects of the maxillary premolars and the mesial half of the maxillary first molar. (35%) (figure 4).

In the past two decades, the influence of aesthetic values on restorative dentistry and prosthodontics have been increasing dramatically. Various novels and articles have been specifically developed leading to less invasive approaches on one side and having highly predictable results on the other side. (Prasad, Shetty and Mehra, 2013) (Kloukos et al., 2014) (Ehrenfest et al., 2010) Currently, anterior fixed partial dentures can frequently provide long lasting aesthetics and ultimately create the almost perfect illusion, making it difficult to detect that missing teeth have been replaced by a prosthesis. As a consequence, any implant borne prosthesis will be compared to the aesthetic and functional standards that can be achieved today by conventional tooth supported restorations.

Figure 1: Bar graph represents the knowledge and awareness of students on the success rate of tissue grafts after an implant placement. The x axis of the graph represents the knowledge on success rate and the y axis represents the number of participants in the study. The graph infers that most of the students knew about the success rate of connective tissue grafts compared to other tissue grafts used for implant aesthetics depicted as grey in the graph(65.0% of the students) followed by some not sure shown in blue colour (25.0%)

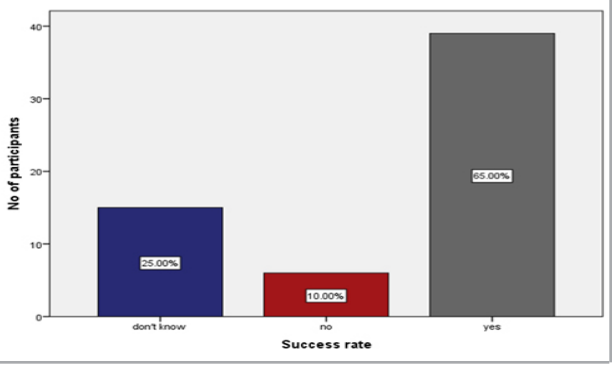


Figure 2: Bar graph represents the knowledge and awareness of students on the aesthetic considerations of tissue grafts compared to other grafts after an implant placement. The x axis of the graph represents the knowledge on aesthetic consideration of the graft and the y axis represents the number of participants in the study. Most of the students were not sure of the answer ie. 45.0% of the students shown in blue in the graph followed by 36.67% of the students answered yes shown as grey colour.

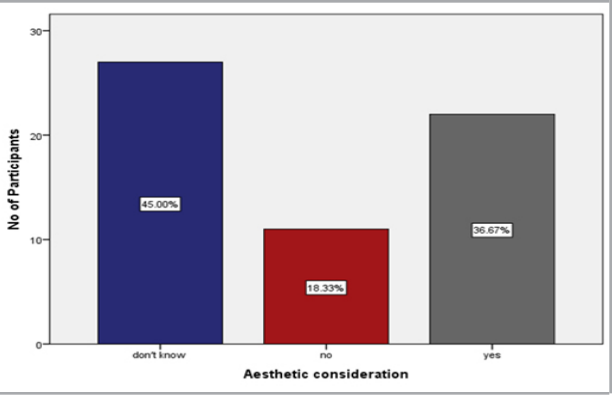


Figure 3: Graph represents the survey knowledge and awareness of the students on ideal thickness of the tissue graft that can be used after an implant placement. The x axis of the graph represents the knowledge on the ideal thickness of the graft and the y axis represents the number of participants in the study. The answer commonly received was found to be 1.5-2mm (41.67%) shown as grey colour followed by 0.5-1mm thickness shown as blue colour (28.37%).

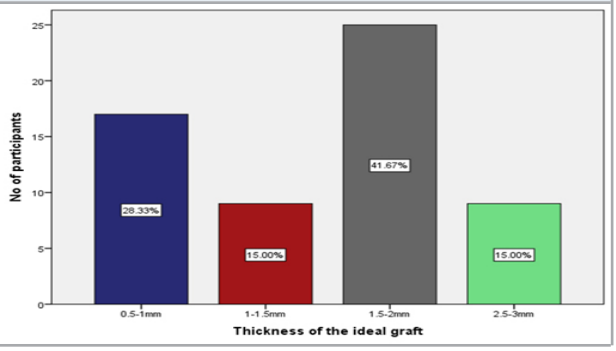
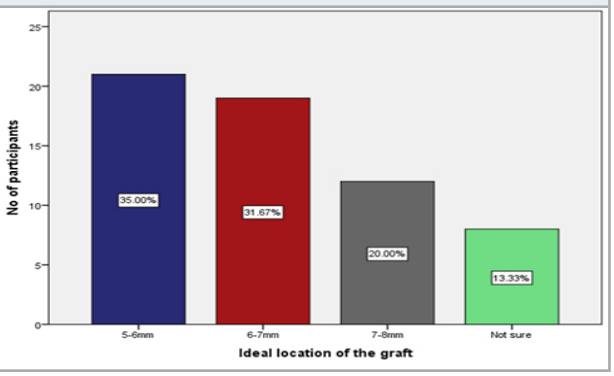


Figure 4: Graph represents the knowledge and awareness of students on the ideal location of the connective tissue graft. The x axis of the graph represents the knowledge on the ideal location of the graft and the y axis represents the number of participants in the study. The most common answer obtained was 5-6mm (shown as blue colour in th graph) apical to the gingival margin of the tooth (35%) followed by 6-7mm (31.67%) shown in red in the graph.



Patients report to the practitioners asking for replacement of teeth and not directly asking for implants. They would like to have their teeth replaced in the most aesthetically and long lasting way possible. This includes criteria such as maximum preservation of sound tooth structure, avoidance of removable prosthesis, minimal surgical risk as well as cost effectiveness. (Öncü et al., 2016) (Dohan et al., 2006) (Mehta and Watson, 2008). Soft tissue augmentation is especially important in the aesthetic zone. The facial soft tissue parts will resorb quite quickly which should be prevented. The interdental papillae will disappear fast after extraction, and in addition, the enormous bone loss will influence the Gingiva. (Lacci and Dardik, 2010) The initial quality of the gingival tissue is important. (Assoian et al., 1983) (Banks et al., 1998) (Gassling et al., 2010) (Streckbein et al., 2012) (Tolstunov, 2016) (Fujioka-Kobayashi et al., 2017) A thin biotype is less predictable then a thick biotype. The wound should be closed primarily without any tension. If the gingival tissue is weak or damaged, sloughing of the soft tissue is likely to occur and will lead to a compromised healing site due to contamination. Long-term clinical studies have shown that functional osseointegration is a predictable outcome. The dental implant therapy success depends not only on the osseointegration but also on aesthetic, function and harmony with the remaining dentition. (Kan, Rungcharassaeng and Lozada, 2005) (Schoenbaum, 2018) The most important factors that influence the esthetic outcome of the implant-supported restorations are as follows :Patient selection and smile line; Tooth position; Root position of the adjacent teeth; Biotype of the periodontium and tooth shape; The bony anatomy of the implant site; The position of the implant.

CONCLUSION

Satisfactory esthetic outcome is challenging in implant-supported restorations replacing missing anterior teeth. The maximization of the esthetic outcome depends mostly on the optimization of the algorithms specific to the pro-prosthetic, pro-implant and prosthetic stage. Hence gaining knowledge and aptitude towards connective tissue grafts in implant aesthetics will help in patient satisfaction as well as success of the implant.

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Conflict of Interest: The authors would like to declare that there is no conflict of interest among the authors.

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