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Evaluation of preference for posterior missing teeth rehabilitation in practising prosthodontist: An original research

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Abstract---Aim: The purpose of the present study was to assess various treatment options amongst prosthodontists for rehabilitation of missing posterior teeth in their patients. Methodology: 100 prosthodontists participated in this questionnaire survey. 7 questions were asked from the practicing prosthodontists about various treatment options they choose for rehabilitation of posterior missing teeth. They were also asked about how patient's choices as well excess

cost of materials, influence their decision as well as long term stability. Statistical analysis like- standard deviation, mean etc. p value <0.05 was considered significant. Results: We observed that 69% of prosthodontists (1.38 ± 0.92) believed that missing posterior teeth rehabilitation does indeed suffer from more number of failures as compared to anterior teeth replacement due to maximum masticatory load put on the posterior teeth ($p=0.03$). Patient preference influences the decision making of almost 76.9 % prosthodontists especially based on compliance, cost as well as phobia. Cost is always an important decision maker for 89% participants while selecting the treatment option ($p=0.0145$). Conclusion: Fixed dental prosthesis has become the treatment of choice for long term stability according to the prosthodontists. However, cost effective removable partial dentures will always be there for elder population.

Keywords---fixed partial denture, stability, cost effective, patient satisfaction.

Introduction

Decisions about posterior (premolars and molars) single-tooth replacement requires consideration of each patient's desires, condition of proximal and remaining dentition, anatomic and physiological characteristics of the edentulous site, and fiscal resources. There are many options and outcome possibilities. Decisions about tooth replacement need to be individualized by a knowledgeable provider and an informed patient to support choosing care wisely. Patients differ in the value they place on their teeth. Psychological attitude about tooth loss varies. Some patients are willing to expend a significant proportion of their resources for interventions if they value the treatment or believe it is necessary, while others prefer to devote a minimal amount on dental care. Some patients want procedures to be done quickly and with the least disruption of their life, while others will endure discomfort and multiple procedures to get best possible or particular type of result. Because functional and esthetic priorities of patients vary widely, the practitioner should acknowledge these priorities within fiscal realities when developing the treatment plan for single-tooth replacement. Patients' esthetic, functional, and self-image expectations should be determined. The dentist should explain outcomes expected with various treatment options, including no replacement. The potential longevity, maintenance, current and future cost, and effect of the various options on the patient's longterm dental stability and health should be carefully explained using evidence-based concepts and expert judgment. Informed patients best determine the treatment option with the most value for their own particular situation. Dental arch instability caused by a missing posterior tooth is related to the tooth location, occlusion, and other variables. Drifting, tipping, rotation, supra-eruption, and segmental alveolar bone growth are potential detrimental effects associated with unrestored tooth loss. Each of these negative possibilities varies in the likelihood and extent of change anticipated.¹ Current evidence² suggests that these changes are not as frequent or extensive as historically believed.³ These potential detrimental effects should be

understood and explained to the patient. If intervention is not provided, conventional casts or digital replication of existing conditions for future comparisons is advised. Restorative options also need to be clearly explained to the patient. A tooth-supported fixed dental prosthesis (FDP) can improve esthetics and function, stabilize tooth position, and reduce potential alveolar stresses,⁴ but can compromise the teeth prepared to serve as abutments. The amount of natural tooth structures affected for making the FDP varies from minimal to substantial depending on the existing condition of the abutments. An implant-supported crown may be expensive and may require alveolar augmentation that can range from simple to complex with varying success predictability. Implants with crowns are initially expensive but may be less costly and have more predicted longevity⁵ than conventional FDPs.⁶ Implant crowns are not susceptible to caries in caries-susceptible individuals. However, placement of single implants in a patient with a poor prognosis of remaining teeth may require removal of the implant if it is poorly positioned for an eventual full-mouth reconstruction or denture/overdenture. Even one-tooth replacement decisions can involve complex diagnostic and treatment issues that can be enhanced by referral to specialists. Treatment options may range from no treatment, a resin partial removable denture prosthesis (RDP), and various tooth-borne FDPs to an implant-supported fixed restoration.

Aim of the present study

The purpose of the present study was to assess various treatment options amongst prosthodontists for rehabilitation of missing posterior teeth in their patients.

Methodology

Around 100 prosthodontists participated in this questionnaire survey who had more than 5 years of clinical experience. Out of 100, 34 were female prosthodontists and all participants were in the age range of 30-50 years. Survey was formatted in English language and in an open-ended format which were emailed to the participants. 7 questions were asked from the practicing prosthodontists about various treatment options they choose for rehabilitation of posterior missing teeth. They were also asked about how patient's choices as well as excess cost of materials, influence their decision as well as long term stability. (Table 1) The data received was entered in MS excel spreadsheet. Descriptive statistical analysis was performed with the help of SPSS 25.0. Statistical analysis like- standard deviation, mean etc. p value <0.05 was considered significant.

Results

In our present study, we observed that 69% of prosthodontists (1.38 ± 0.92) believed that missing posterior teeth rehabilitation does indeed suffer from more number of failures as compared to anterior teeth replacement due to maximum masticatory load put on the posterior teeth ($p=0.03$). Around 66.9% participants feel that FDP's are better than RDP's as a treatment option attributed to long term stability and less of maintenance required by the patients. Around 13.4% of the prosthodontists suggest implant as a go to option especially in case of implant

supported overdentures. Patient preference influences the decision making of almost 76.9 % prosthodontists especially based on compliance, cost as well as phobia. Cost is always an important decision maker for 89% participants while selecting the treatment option ($p=0.0145$). For elderly patients, ridge augmentation is required for having a good quality bone support for any form of prosthodontic treatment especially in posterior mandibular area, which was did influence around 59% of prosthodontists (2.36 ± 2.11). (Table 2)

Discussion

Timely restoration of edentulous spaces is needed to prevent the adverse consequences of tooth loss. Dentists performing prosthetic treatments have a vast array of alternative treatment options at their disposal, which they can use instead of conventional and essentially more invasive procedures. The choice of the prosthesis for replacing a single missing tooth is determined by various factors, such as; age, gender, socio economic status, individual patient's condition (medical or psychological), location of the tooth in the arch, quality of ridge and alveolar bone, empirical evidence of outcomes of treatment, experience and expertise of clinicians and patient's preference.⁷ Prosthetic options for replacement of partially missing dentition include removable partial denture (RPD), fixed dental prosthesis (FDP), and implant-retained prosthesis. However, FPDs or implants are opted out as treatment option in patients having excessive resorption of residual ridge following extraction and also with jaw defects following trauma or any surgery. Prosthetic rehabilitation of such cases is best carried out with conventional RPD prosthesis or fixed removable prosthesis, thus restoring the defective areas of hard and soft tissues in order to achieve proper oral function, speech and aesthetics. Such prosthesis aims in rehabilitation with adequate stability, retention and support similar to that of a fixed dental prosthesis and better aesthetics with maintaining hygiene like that of a removable prosthesis.⁸ Recently, implants have gained attention over removable prosthesis as a treatment option, yet various anatomical, physiological, psychological factors of the patients make it a contradiction. Also, these are not cost effective. Conventional RPDs along with their various modifications are the most cost-effective, non-invasive and comparatively better option for rehabilitation of partial edentulism. Rehabilitation of the lost dentition enhances the quality of life of the individual. Physiologic functions are restored to the individual. Restoration of missing and attrited teeth requires a knowledge about the vertical dimension of the patient. In our study, we observed that patient preference as well as cost of the materials used in the treatment take center-stage for rehabilitation of posterior missing teeth. However, implant supported overdentures as well as fixed dental prosthesis are the choice of treatment these days.

Conclusion

The patient's values coupled with short and long-term outcomes based on best available evidence, need for lifelong maintenance, and fiscal realities should be evaluated carefully with the patient when considering single posterior tooth replacement. Proper care is patient specific, and it is each dentist's responsibility to identify and provide or manage appropriate care. Fixed dental prosthesis has

become the treatment of choice for long term stability according to the prosthodontists.

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Tables

Table 1- Questionnaire used in the present research

S. No.	Questions
1	Is rehabilitating posterior missing teeth have maximum number of relapses in the treatment?
2	Do you prefer fixed dental prosthesis in comparison to Removal dental prosthesis?
3	How often do you advise implants as a rehabilitation measure?
4	How does patient preference of a treatment option influence your decision?

5	Is cost an important factor while selecting a treatment options?
6	How often do you get patients who are medically compromised and seeking replacement of missing teeth in posterior quadrants?
7	How often do you advise your patients for ridge augmentation especially older patients?

Table 2- Quantitative data observed in the present research

Q. No.	Mean± SD	P value
1	1.38±0.92	0.03
2	1.99±1.04	0.076
3	3.56±3.02	1.98
4	1.27±0.78	0.047
5	1.19±0.56	0.0145
6	2.89±2.34	1.345
7	2.36±2.11	0.17