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Communication Quality between Prosthodontist and Dental Technician and Its Effects on Prosthetics: An Original Research

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Abstract-
Clear and effective communication between the dental practitioner and dental technician is recognized as a prerequisite for the technician to produce high quality and appropriate fixed and removable prostheses. When prosthetic rehabilitation of a patient is advised, there are several treatment options that a patient can select from. A questionnaire was administered to all the technicians (n=74). A total of 10 questions was asked. From the findings, it can be concluded that- Good quality communication between both dental technicians and dentists is not always present. Dental technicians were largely in agreement that they are more than comfortable when it comes to discussing prosthesis construction with their dentist. This article highlights the rpdcommunication between the technician and dentists.

Key words-Prostheses, Dental Technicians, communication, prosthodontists, removable partial denture

Introduction

Communication may be described as the action of sending and receiving information either through verbal or non-verbal forms (1).Clear and effective communication between the dental practitioner and dental technician is recognized as a prerequisite for the technician to produce high quality and appropriate fixed and removable prostheses (2).When prosthetic rehabilitation of a patient is advised, there are several treatment options ranging from removable to fixed prostheses that a patient can select from. Selection of a specific treatment option for the patient largely depends upon several factors such as; age, systemic condition, economic and time constrain, condition of remaining intraoral structures etc (3).Clinician thus has the main obligation to transfer clear, complete and precise prosthetic prescriptions to

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the dental technician. The dental technician responsibility is to construct oral prostheses in accordance with instructions specified by the dentist(4,5).Once adequate information is provided to the dental laboratory by the dentist, the skill and knowledge of the dental laboratory technicians is greatly responsible for fabrication of the prosthesis that in turn affects the treatment outcome (1,3,5).Strict ethical and legal guidelines govern the provision of a prosthesis to the patient. Optimal aesthetics and function, the hallmarks of a successful prosthetic treatment, depend on the careful selection of appropriate materials, effective techniques and a suitable prosthesis design (3,4,6).

Inadequate communication of design information results in a prosthesis that has been fabricated with little reference to important clinical or biological information. The potential of poorly designed prostheses to cause tissue damage is evident(1,3,7).Optimal aesthetics and function, the hallmarks of a successful prosthetic treatment, depend on the careful selection of appropriate materials, effective techniques and a suitable prosthesis design(7,8).A dentist prepares teeth and the impression of the tooth designated for restoration. It is primarily the technician's skills and judgment that are responsible for the production of a clinically acceptable restoration. Therefore, the knowledge and skills of the laboratory technician is highly critical in producing a successful restoration (9).

For fabrication of removable partial denture(RPD), the creation of an optimal RPD design is dependent on the following factors:

1. Clinical knowledge and training.
2. A thorough assessment of the patient.
3. Appropriate treatment planning including any mouth preparation.
4. Technical expertise and knowledge of the properties of materials.

Clearly the dentist's contribution is related primarily to the first three aspects while the technician's contribution is concernedwith the fourth(2).The dentist's input is founded on the following: A knowledge of biological factors, pathological processes and the possible influence of mechanical factors on the masticatory system.A knowledge of the patient's medical and dental history and an ability to appreciate, and to take account of, those aspects likely to be significant in RPD treatment.An ability to undertake a thorough clinical examination and analysis of the oral environment.An ability to modify the oral environment, eg. by toothpreparation, periodontal and orthodontic therapy etc., toincrease the effectiveness of the RPD treatment.An ability to design an RPD which enhances, rather than compromises, oral function.An ability to anticipate possible future oral changes whichcan then be taken into account when designing the RPD.

The technician's input is founded on:The ability to translate two-dimensional design diagramsand written instructions into the three-dimensional realityof an RPD, according to accepted biological and mechanicalprinciples.The knowledge of appropriate techniques and materials toproduce the finished RPD.It is clearly essential that a dialogue between the two membersof the team takes place so the expertise of both can be combined to ensure that the required outcome is achieved(2).

Materials and Method

A survey was undertaken to assess the communication between a prosthodontist and the technician. A questionnaire comprising of 10 questions was to be filled by the technicians.The questionnaire with the options for answer is given below. Also the percentage of the responses(yes/no) is given below.

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Results:

With increasing awareness and knowledge of patients regarding their own dental health, there has been a tremendous change in their attitude and responses to the treatment they receive in a dental clinic. With information about the advanced and more comfortable treatment modalities available, patient's interest has shifted towards fixed prostheses than removable ones. The ethical and legal responsibilities of both the dentist and dental laboratory technicians play a key role in successfully treating a patient. Relying only on the dentist's knowledge and authority to delegate laboratory procedures based on the functional and esthetical demands of the patient is not sufficient. The assistance provided by dental laboratory technicians in fabricating a prosthesis is equally important. Several surveys have been carried out in the past to evaluate the efficiency of communication between the dentist and lab technicians. Results of these studies have greatly improved the current communication strategies between the two for improved quality of work. However, one of the major concerns that has not been focused upon is the use of correct techniques in fabrication of prostheses (5-7,10).The questionnaire form was given to 74 technicians and they all responded. When asked, if the impression they received was sterilized. To which all respondents agreed. With the current scenario, it becomes of primary importance that the impression is adequately sterilised. When asked, if the age and gender have been indicated? 70 respondents (94.59%) have confirmed that the prosthodontists have indicated the age of the patient and 69 respondents (93.24%) I.e. dental technicians said that they informed about the gender of the patient. This is in accordance to the basis of understanding that age and gender affect the selection of teeth for a prostheses. The shade, form and shape of the teeth to be selected for replacement of the missing teeth all vary due to the age and gender of the patient.The elastomers were the most common impression material used (n49=66.21%).In this investigation, 41% only of the necessary parameters were indicated in the work authorization for fixed prosthodontics, while for removable prosthodontics were 50% only to complete the task. The shade indicated in 94.59 (n =74) of cases, while occlusal scheme indicatedin 54.04% (n= 74) of cases. The carving of the posterior palatal seal was made in only 43.24% of cases with complete dentures by the dentist.

Table 1: Response of the samples of Questionnaire

n=74	Yes	No	%
1.Has the master impression been disinfected adequately by the dentist?	74	-	100
2. Is the age indicated?	70	4	94.59
3. Is the gender indicated?	69	5	93.24
Regarding the master impression -			
4. What type of impression material is used?	Alginate =25	Elastomer=49	Alginate= 33.18% Elastomer= 66.21%
5. Is the occlusal scheme indicated?	40	34	
6. Is the shade indicated?	70	4	94.59
7.Is the posterior palatal seal is carved by the dentist?	32	42	43.24
8. Is the design indicated?	30	44	40.54
9.Is which metal alloy to be used indicated?	23	51	31.08
10. Are clear instructions for fabrication provided?	40	34	54.05

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Discussion:

The present study revealed that most design details were left to the technician's decision in majority of the cases. The design of any dental prosthesis, either removable or fixed, involves complex biological and mechanical principles. While dental lab technicians, an esteemed member of the dental team, may be highly skilled in executing the prescribed prosthesis design in the laboratory, they are not equipped with knowledge and skill sufficient to design a prosthesis with reference to a patient's dental and periodontal status(8). It is the dentist's responsibility to design the required prosthesis and to communicate the design effectively to the lab technician. Poor quality of communication between the dentist and dental lab technician is a worldwide phenomenon. In 76% of the cases, the dentist did not specify the surfaces to be covered by metal alone. These findings, unfortunately, compare favourably with those of *Jenkins et al* who argued that incorrect placement of porcelain on the occlusal surfaces of crown can cause accelerated attrition of the enamel of opposing natural teeth.

Also,It was found that half of the written instructions 49.6% (n=54) were considered ''clear''. Out of which 34% of the technicians had to approach the dentists to clarify some of the written instructions. This might reveal inadequate written instruction and communication between clinician and laboratory technicians. Which might be due to the fact that the dentist depends on the dental technician to construct the prostheses in specific manner and design, or the dentist interested in writing certain information in the work instruction form over other information. Also, it could be due to weak undergraduate training in writing laboratory instructions. Notwithstanding this, the results of this study were comparable, if not slightly better than that observed in other studies. It is disappointing that even though the problems of inadequate prescription and communication between clinician and laboratory was first highlighted almost 30 years ago (10), there is still evidence to demonstrate that these problems still persist. The reasons for this are not entirely clear. Possible reasons advanced previously in the literature relating to this phenomenon in the field of removable prosthodontics include a lack of adequate educational exposure, or inadequate financial remuneration. As all the prosthodontic items in this survey were provided on a private basis, it is fair to assume that practitioners were able to charge a fee appropriate to the difficulty of the case. It is difficult therefore to argue that this inadequacy is related to financial reasons (5,7,10).

Conclusion:

The dental laboratory technicians are important members of the dental health team. The interaction between dentists and dental laboratory technicians has been termed a ''love hate relationship'', and the laboratory work authorization has been called the most frequently used and abused form of communication between them (10).Within the limitations of this survey study, it can be identified that there is inadequacy of knowledge about the basic laboratory procedures used in fabrication of FDPS amongst the lab technicians. Emphasis should be given on use of appropriate procedures in fabrication of any prostheses in dental laboratories so as to improve the quality of work delivered by the laboratories(3).From the findings, it can be concluded that- Good quality communication between both dental technicians and dentists is not always present. Dental technicians were largely in agreement that they are more than comfortable when it comes to discussing prosthesis construction with their dentist(1,10).The results of this study can serve as a base for further research in this area in other clinics in order to gather detailed information about the quality of communication existing between the prosthodontists and the lab technicians.

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