



Imperative Assessment of Incidence of Complications amongst Patients Rehabilitated With Immediate Denture Therapy: An Original Research Study

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Abstract

Background & Aim: Immediate denture modality is very common in indicated situations. However, immediate denture poses higher post operative problems compared to conventional complete dentures. So, this study was conducted to comprehensively assess the incidence of complications amongst patients rehabilitated with immediate denture therapy.

Materials and Methods: This study was performed on the patients requiring immediate dentures therapy. Total 30 patients were selected by simple sampling procedure in the age range of 45 years to 65 years. Group 1 consisted of 15 patients in which conventional immediate complete denture were planned and fabricated. Group 2 also consisted of 15 patients in which interim immediate complete dentures were planned and fabricated. Immediate complete dentures of both groups were fabricated by standard manner. Patients were recalled in their follow up appointments and details about complications were recorded. Clinical assessment factors like pain, retention, function, maintenance, esthetics were recorded. Data was sent for statistical analysis using SPSS software.

Statistical Analysis & Results: Results confirmed that in the age range of 45-50 years, total 4 patients were present. P value was highly significant for this group (0.03). In Group 1 of 15 conventional immediate denture patients, 4 had complain of pain, 5 had issue of retention, 3 has problem of denture function and 2 reported for maintenance problem. P value was highly significant for incidences noted for pain (0.02). In Group 2 of interim immediate complete denture patients, 5 had complain of pain, 5 had issue of retention, 2 has problem of denture function and 2 reported for maintenance problem. P value was highly significant for incidences noted for pain (0.01). ANOVA analysis was also performed and it showed highly significant P value here (0.001).

Conclusion: Within the limitations of the study, authors concluded that post operative clinical complications are common with immediate complete denture therapy. Pain, retention, discomfort, maintenance problems, esthetic issues and performance issues were noticed in both the groups. The relative incidence of pain parameter was high in both of the study groups. So as to establish more relevant guidelines, other long term similar studies need to be conducted.

Keywords: Conventional Complete Denture, Complications, Pain, Immediate Denture, Retention

Introduction

Complete edentulousness is a worldwide problem of geriatric age group that starts usually with rapid fall of teeth due to different reasons. Aggressive periodontitis is a common clinical prpbem which leads to early tooth loss.^{1,2} After the complete loss of all teeth, patients are normally demanding artificial



replacement of their missing teeth in the form of dentures. Conventions complete dentures have their own issues like lengthy fabrication processes and cumbersome chair side time and multiple visits. Completely edentulous patients often face psychological problems and social isolation. This is because of their non acceptance in social community.^{3,4} So, keeping all these significant points in mind, the researchers have experimented and invented immediate complete denture. These immediate complete dentures were originally designed and developed to be delivered immediately after the extraction of last teeth. One of the advantages of immediate denture is that it acts as a dressing to help control bleeding and prevent wound against trauma from the tongue, bolus.^{5,6} Later on many design modifications have been introduced in the immediate denture to overcome the related clinical problems. Several pioneer researchers have conducted studies to assess clinical performance of immediate dentures and their other variants.^{2,4,7,8} So, this study was conducted to comprehensively assess the incidence of complications amongst patients rehabilitated with immediate denture therapy.

Materials and Methods

This study was planned, abstracted and performed exclusively on edentulous patients those seeking for immediate dentures soon after their extraction of last teeth. The study was particularly designed to compare the incidences of post operative problems or complications in two different groups. Total 30 patients were selected by simple sampling procedure. All required measures have been used to avoid any kind of information and selection bias during the study. Both male and female subjects were included in the study in the age range of 45 years to 65 years. Group 1 consisted of 15 patients in which conventional immediate complete denture were planned and fabricated. Group 2 also consisted of 15 patients in which interim immediate complete dentures were planned and fabricated. All patients have already been informed about the study and informed signed consents were obtained from them. Inclusion criteria included; a) completely edentulous patients requiring immediate artificial replacement of all dentition by removable prosthesis b) patients in the age range of 45 to 65 years only c) patients selection from nearby geographical region d) patients with no follow up problems e) patients without any ongoing medication for other systemic disorders. Exclusion criteria were; patients with any visual and communication problems and patients with any neurological issues. Immediate complete dentures of both groups were fabricated by standard manner mostly by single operator to avoid any procedural bias. Also, similar one brand acrylic resin was utilized unanimously for all thirty dentures. Patients were recalled in their follow up appointments and details about complications/problems were noted logically. Clinical evaluation parameters like pain, retention, function, maintenance, esthetics were recorded and analyzed purposefully. All data recordings were attempted only after two weeks of denture delivery. All rights and privacy was kept confidential. Data was sent for statistical analysis using SPSS software. P value less than 0.05 was taken as significant.

Statistical Analysis and Results

All relevant data was entered into master spreadsheet and entered into SPSS software. Suitable tests were then applied to outline significant inferences. Table 1 & Graph 1 show about age & gender based allocation of all patients. Out of total 30 patients, 15 in group 1 and other 15 were in group 2. Similarly, out of total studied patients, there were 18 male and 12 females in the age range of 45 to 65 years. Amongst 45-50 years, total 4 patients were noticed. P value was highly significant for this group (0.03). In the next age range of 51-55 years, total 9 patients were identified. P value was not significant for this



group (0.80). Table 2 shows about Statistical analysis and descriptions for post operative incidences of complication of Group 1: Conventional Immediate Complete Denture. All incidences of complications were seen in two weeks post operative follow up recall visits of patients. Out of 15 conventional immediate denture patients, 4 had complain of pain, 5 had issue of retention, 3 has problem of denture function and 2 reported for maintenance problem. Only 1 patient reported about esthetic problem in wearing conventional immediate denture patients. P value was highly significant for incidences noted for pain (0.02). Table 3 shows about Statistical analysis and descriptions for post operative incidences of complication of Group 2: Interim Immediate Complete denture. All incidences of complications were seen in two weeks post operative follow up recall visits of patients. Out of 15 Interim Immediate complete denture patients, 5 had complain of pain, 5 had issue of retention, 2 has problem of denture function and 2 reported for maintenance problem. Only 1 patient reported about esthetic problem in wearing conventional immediate denture patients. P value was highly significant for incidences noted for pain (0.01). Table 4 shows about assessment amongst the 2 study groups using one-way ANOVA [for Group 1 & 2]. Assessments for between groups, within groups and cumulative were done. P value was significant here (0.001).

Table 1: Age & gender based statistical details of participating patients

Age Group (Yrs)	Male	Female	Total	P value
45-50	3	1	4	0.03*
51-55	5	4	9	0.80
56-60	6	2	8	0.60
61-65	4	5	9	0.20
Total	18	12	30	*Significant
*p<0.05 significant				

Table 2: Statistical analysis and descriptions for post operative incidences of complication of Group 1: Conventional Immediate Denture

Parameters	n	Stat. Mean	Std. Deviation	Std. Error	95% CI	Pearson Chi-Square Value	df	p value
Pain	4	1.92	0.329	0.235	1.02	1.237	2.0	0.02*
Retention	5	2.02	0.653	0.532	1.37	1.538	1.0	0.18
Function	3	1.64	0.231	0.036	1.43	1.126	2.0	0.34
Maintenance	2	1.43	0.726	0.833	1.70	1.453	2.0	0.10
Esthetics	1	1.17	0.023	0.302	1.12	1.782	1.0	0.90



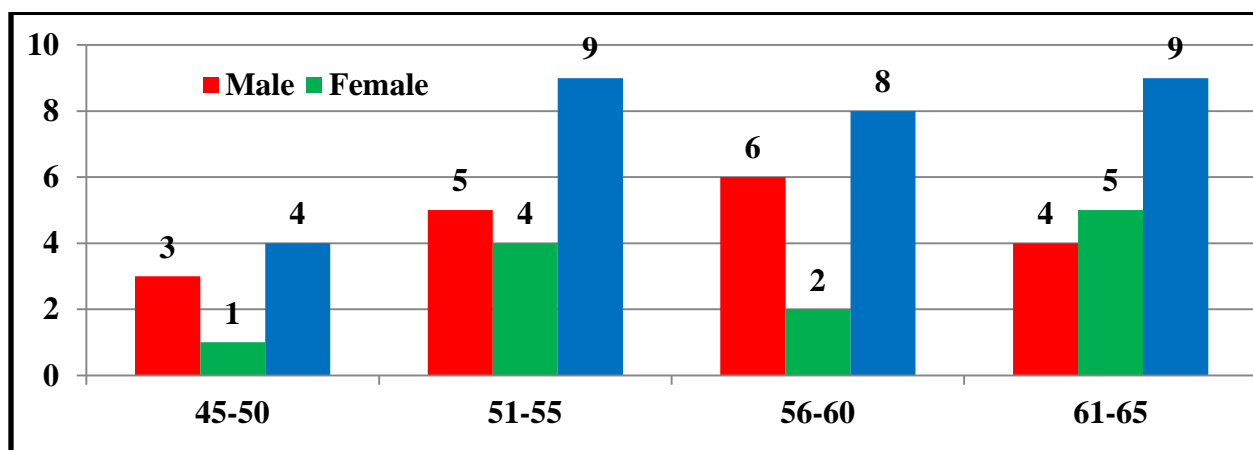
Table 3: Statistical analysis and descriptions for post operative incidences of complication of Group 2: Interim Immediate Complete Denture

Parameters	n	Stat. Mean	Std. Deviation	Std. Error	95% CI	Pearson Chi-Square Value	df	p value
Pain	5	2.93	0.035	0.124	1.24	1.128	1.0	0.01*
Retention	5	1.12	0.368	0.237	1.02	1.733	2.0	0.90
Function	2	2.76	0.102	0.123	1.52	1.996	2.0	0.12
Maintenance	2	1.11	0.930	0.437	1.03	1.763	2.0	0.80
Esthetics	1	2.54	0.163	0.433	1.23	1.916	1.0	0.14

Table 4: Evaluation amongst the 2 study groups using one-way ANOVA [for Group 1 & 2]

Variables	Degree of Freedom	Sum of Squares Σ	Mean Sum of Squares $m\Sigma$	F	Level of Significance (p)
Between Groups	2	3.175	1.920	1.9	0.001*
Within Groups	17	5.129	0.312		-
Cumulative	198.10	12.625			*p<0.05 significant

Graph 1: Patient’s demographic allocation and related details



Discussion

After complete loss of teeth, patients usually undergo sever psychological trauma and distress. Therefore it is deemed necessary to ensure a smooth emotional and functional transition of patient from dentulousness to edentulousness state of mouth. Many of the researchers have confirmed that



this transition is also play a major role in the final success of almost all related rehabilitations.^{9,10} However, they do not apparently guarantee the final success of the prosthesis. With the inadvertent loss of teeth, patient abnormally loss their part periodontium also. With this event there is clear hampering to the structural integrity, diet, mastication and taste sensitivity which was originally associated with teeth. Loss of teeth also leads to emotional instability, negative self-image, lowering of confidence leading to interruptions of overall physical well-being of person.^{11,12} Many of the researchers have also shown that immediate denture therapy is highly imperative. It was primarily administered to avoid the period of edentulousness till the final fabrication of the prosthesis. It was also given initially to restore individual's social acceptance as soon as possible. Usually immediate dentures are being planned well before extraction of the teeth.¹³ However clinician are keep on reminding about considering other significant factors like number location and condition of retained tooth roots, scheme and extent of transfer of occlusal forces to the underlying jaw. Many of the studies in the literature have confirmed that immediate denture patients with few remaining root pieces show enhanced neuro-sensory functions somewhat similar to dentulous state.^{14,15}

Conclusion

Outcomes of this study were expected and important. Within the limitations of the study, authors concluded that post operative clinical complications are usual to be seen in patients rehabilitated with immediate complete denture therapy of both types; conventional and interim. The major clinical problems were pain, retention, discomfort, maintenance problems, esthetic issues, performance dilemmas. These clinical delinquencies were almost equally seen in both of the study groups with pain being slightly higher with interim immediate complete denture. P values were highly significant for pain parameter in both of the study groups. The relative incidence of pain parameter was high in both of the study groups. Our study recommendations should be clinically correlated before applying them on patient.

References

1. Varsha R, Manoharan PS, Chandrasekaran V, Savitha K. A Journey toward Immediate Denture: Overcoming Bitter Reality with Psychotherapy. *Case Rep Dent*. 2022;26:30-9.
2. Nimmo A, Winkler S. Conventional immediate denture. In: Winkler S (Ed). *Essentials of complete denture Prosthodontics* (2nd ed). New Delhi: Ishiyaku EuroAmerica Inc AITBS Publishers 2000:361-74.
3. Stillwell KD, Amir J. A clinical pathway for complete immediate denture therapy: Successful prosthetic management for hopeless dentitions. *Gen Dent* 2008;6:380-89.
4. Jerbi FC. Trimming the cast in the construction of immediate dentures. *J Prosthet Dent* 1966;16:1047-53.
5. Crum RJ, Rooney GE Jr. Alveolar bone loss in overdenture a 5-year study. *J Prosthet Dent* 1978;40:610-13.
6. Fenton AH. The decade of overdenture 1970 to 1980. *J Prosthet Dent* 1998;79:31-36.
7. Morrow RM, Feldmann EE, Rudd KD, Trovillion HM. Tooth supported complete denture: An approach to preventive prosthodontics. *J Prosthet Dent* 1969;21:3-22.
8. Pacer FJ, Bowman DC. Occlusal force discrimination by denture patients. *J Prosthet Dent* 1975;33:602-09.



9. Shah RJ, Diwan FJ, Diwan MJ, Chauhan VJ, Agrawal HS, Patel GC. A study of the emotional effects of tooth loss in an edentulous Gujarati population and its association with depression. *J Ind Prosthodont Soc* 2015;15(3):237–243.
10. Priyadarshini D, Nadig P, Deshpande N, Deshpande A. Role of psychotherapy in managing a case of generalized aggressive periodontitis. *BML Case Reports*. 2014;2014, article bcr2013200851
11. Teughels W, Dhondt R, Dekeyser C, Quirynen M. Treatment of aggressive periodontitis. *Periodontology 2000*. 2014;65(1):107–133.
12. Bhat V., Balaji SS. Immediate partial denture prosthesis-a case report. *J Health Allied Sci NU*. 2013;3(4):120–124.
13. Handa M, Marya P. Rehabilitation of a patient with an immediate complete denture: a case report. *Ind J Dent Advancements*. 2018;10(1):56–59.
14. Güneri P., Epstein J., Botto R. W. Breaking bad medical news in a dental care setting. *J Am Dent Asso* 2013;144(4):381–386.
15. Pereira CR, Calônego MA, Lemonica L, et al. The P-A-C-I-E-N-T-E protocol: an instrument for breaking bad news adapted to the Brazilian medical reality. *Revista da Associação Médica Brasileira*. 2017;63(1):43–49.

