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Patient Satisfaction Of Implant-Supported Fixed Prostheses Using The All-On-4 Concept For Mandibular Rehabilitation.

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Abstract
Background*: This study aimed to evaluate patient satisfaction of implant-supported fixed prostheses using the All-on-4 concept for mandibular rehabilitation in comparison to conventional complete denture.*
Materials and methods*: Six edentulous patients will be selected from pervious study already have implants inserted in their mandibular ridges according to the All- on -4 concept. Three months after osseointegration, patients received fixed prosthesis (FP). Patient satisfaction was measured 3 months after wearing each of the following prostheses: complete denture CD (control) , and FP*
Results*: For all questions of VAS There was a significant difference between groups regarding all questions except prosthesis is a part of you, socialization, surgery, and embarrassing. For all VAS questions, All on 4 groups showed significant higher satisfaction scores for all tested questions than CD.*
Conclusion : *Compared to CD, All-on-4 implant rehabilitation of edentulous mandible with FP results in greater patient satisfaction*
Key word *: all-on -4 ,fixed prosthesis, implant , satisfaction*

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I. INTRODUCTION

Stability and retention are necessary for full-arch prosthetic rehabilitation to be successful. Patients who have mandibular prostheses frequently complain of instability, diminished function, and discomfort. Implant-supported prostheses in this situation can dramatically lessen pain and enhance masticatory function and quality of life.(1-4) Traditionally,(4-6) implants have been regarded as the optimal number of implants for supporting an implant supported fixed complete denture prosthesis

The technique for total rehabilitation of the edentulous patient or for patients with badly broken down teeth, decayed teeth or compromised teeth due to gum disease, known as the All-on-4 treatment concept, is a prosthodontics procedure was developed, institutionalized and systematically analyzed in the 1990s through studies funded by Nobel BioCare in collaboration with a Portuguese dentist Paulo Maló. It consists of the rehabilitation of the edentulous maxilla and mandible with fixed prosthesis by placing four implants in the anterior maxilla and mandible, where bone density is higher. The four implants support a fixed prosthesis with 12 to 14 teeth and it is placed immediately on the day of surgery. The posterior implants are typically angled approximately 30 to 45 degrees from the biting plane. This will allow a molar tooth to be cantilevered posterior resulting in a denture or bridge with approximately 12 teeth.(5-9)The All-on-4 treatment concept has several advantages: (I) maximal use of the available bone to avoid invasive bone grafting procedures, resulting in significantly less morbidity;(II) minimization of micro movement to achieve osseointegration steadily; (III) placement of acrylic interim prostheses on the day of surgery for immediate loading of implants and maintaining oral functions.(5, 7, 9).Patient-reported outcome is becoming progressively noticeable in assessing the definitive result of dental care. The perception most often used for treatment evaluation of implant intervention in completely edentulous patients is oral health-related quality of life (OHRQoL) Patient satisfaction is another outcome that permits quantification of patients' opinion with respect to the result of prosthodontic treatment.(10) The aim of this study was to evaluate All on 4 mandibular fixed prosthesis opposing maxillary conventional complete denture in comparison to conventional complete denture regarding patient satisfaction

II.MATERIAL AND METHODS

Patient selection and study design

Six edentulous patients will be selected form pervious study [(1)] with the following criteria (a) All patients already have implants inserted in their mandibular ridges according to the All on 4 concept (b) They were healthy, free from any systemic diseases relating to bone resorption such as uncontrolled diabetics or osteoporosis. This was achieved through medical history and clinical examination by physician. (C) All patients have sufficient inter-arch space . (d) All patients are of angle class I maxillo-mandibular relationships. (e) All patients are of angle class I maxillo-mandibular relationships. Exclusion criteria include the following: (a)Any neuromuscular disorders .(b) Uncooperative patients. All selected patients received maxillary and mandibular complete dentures (CD).After 3 months of adaptation, patient satisfaction was evaluated using a questionnaire based on visual analog scale (VAS).

Prosthetic procedures

- Following osseointegration, an open tray impression was performed. Long transfer copings at the abutment level were splinted with orthodontic ligature wire and composite resin. Around the transfer coping, light body polyvinyl siloxane impression material (Speedex, Coltene/Whaledent Inc.) was injected, and the overall impression was completed with heavy body material. The implant analogues were screwed into place fig (1), and the impression was then poured. Fixed detachable screw-retained acrylic prostheses titanium framework was fabricated with a cantilever on each side fig (2). Framework try in was done , then the setup (wax pattern and acrylic teeth) was assembled and a try-in was performed. Insertion and occlusal adjustments were performed. Then, the screw access holes were filled with light cure composite.

Fig (1) implant analogues were screwed to the transfer coping

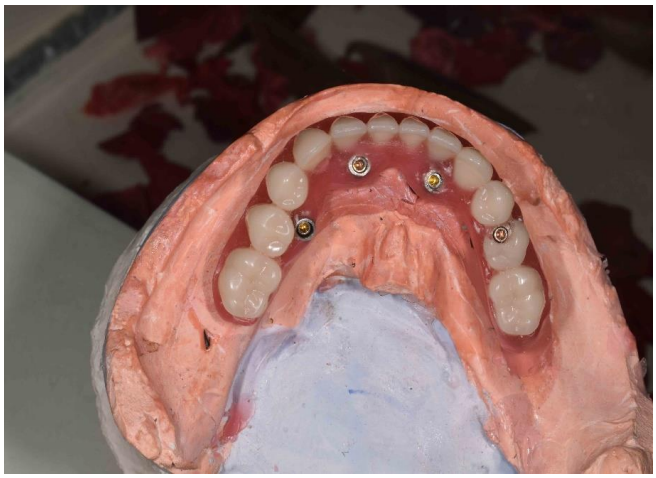

fig (2) Fixed detachable screw-retained acrylic prostheses titanium framework

Evaluation of patient satisfaction

Patient satisfaction was evaluated using a questionnaire based on visual analog scale (VAS). Patients were asked to mark their answer (amount of satisfaction) on a 100-mm line (with zero refers to not satisfied at all

and 100 refers to completely satisfied). The mean of the answers (length of the lines from zero to the marks in mm) for each question was subjected to statistical analysis. The questionnaire was given to the patients in Arabic(11) .To evaluate patient experiences patients answered questions regarding their satisfaction on comfort with prothesis, stability, feeling that prosthesis is part of him, ease of hygiene procedure, difficulty of speaking with prosthesis ,difficulty of chewing, effect on socializing ,satisfaction with healing since implant surgery and activities avoided due to embarrassment

Statistical analysis

The descriptive statistics of VAS data include median, minimum and maximum. Kruskal Wallis test was used to compare VAS data between groups . P value is significant if it was less than .05. The data was analyzed using SPSS (statistical package for social science, version 25).

III. Result

For all questions of VAS There was a significant difference between groups regarding all questions except prosthesis is a part of you, socialization, surgery, and embarrassing for all VAS questions, All on 4 groups showed significant higher satisfaction scores for all tested questions than CD.

Comparison of VAS between groups

	CD			All on 4			Kruskal Wallis P value
	M	*Min*	*Max*	*M*	*Min*	*Max*	
Comfort mandibular	45.00 a	40.00	55.00	80.00 b	60.00	80.00	.047*
Comfort maxillary	60.00 a	60.00	70.00	30.00 b	30.00	40.00	.025*
retention of maxillary denture	70.00 a	60.00	70.00	40.00 b	40.00	45.00	.040*
prostheis_is_part	35.00 a	30.00	50.00	75.00 a	60.00	85.00	.059
oral_hygiene	80.00 a	70.00	85.00	40.00 b	35.00	50.00	.022*
speaking	40.00 a	35.00	50.00	80.00 b	70.00	80.00	.045*
chewing	30.00 a	25.00	45.00	70.00 b	60.00	75.00	.043*
socializing	35.00 a	30.00	40.00	70.00 a	70.00	85.00	.057
surgery	.00	.00	.00	50.00 a	40.00	60.00	.054
embarrassing	30.00 a	35.00	40.00	70.00 a	75.00	70.00	.070

M; median, Min; minimum, Max; maximum

*P value is significant at 5% level. Different letters showed a significant difference between each 2 groups (Mann Whiteny test, p<.05).

IV. Discussion

Compared to CD, All-on-4 implant rehabilitation of edentulous mandible with FP results in greater patient satisfaction. This This finding is consistent with others that have found that patients with prostheses made using the all-on-four concept have a higher quality of life than those with conventional complete prostheses. This is reasonable, as these patients experience an improvement in their appearance, speech, and self-esteem. The all-on-four principle of implant rehabilitation, which requires less soft tissue coverage, has been linked to an improvement in OHRQoL.[12] Some authors have reported that Fixed prosthesis used combined with the "All -on -4 concept" improves aesthetics, speech and self-esteem when compared to CD[13-17]. Goncalves and colleagues concluded that rehabilitation of edentulous atrophic residual ridges using all-on-four concept demonstrated significantly high levels of OHRQoL and satisfaction[12]

Regarding comfort with mandibular prosthesis , fell prosthesis is part , retention, and stability CD showed a lower satisfaction. FD showed the most satisfaction. When compared to CD, FP has better retention and stability, which could be why patients feel more comfortable feeling like both prostheses are a part of them. Allen and McMillan's [18]study showed that people were satisfied with FP than with CD. The fact that FP implants are completely screwed into multiunit abutments may explain why they retain in place and are more stable than CD. The increased complications with CD may be due to the previously indicated decreased stability and retention, which was aggravated by the posterior atrophied ridges. As a result, complications such as pressure sores,

discomfort when eating, occlusion instability, and multiple adjustments of the denture extension and occlusion can develop.

V. Conclusion

Compared to CD, All-on-4 implant rehabilitation of edentulous mandible with FP results in greater patient satisfaction.

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