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Research Article

Oral Health Impact Profile Following Mandibular Reconstruction. Experience Among Egyptian Patients

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Abstract

Objective: The objective of this study was to evaluate the quality of life of patients following mandibular reconstruction using the oral health impact profile (OHIP).

Patients and Methods: The evaluation was performed using the Oral Health Impact Profile questionnaire (OHIP-14). The assessment was achieved for thirteen patients (study group) after delayed mandibular reconstruction compared to twenty normal volunteers (control group). The records were obtained six months after construction of a stable conventional prosthesis for dental rehabilitation.

Results: The results of the present study showed a statistically non significant difference between the two groups regarding the overall score for OHIP-14. Meanwhile, the aspect of psychological discomfort is the only domain that revealed a significant difference among the two groups.

Conclusion: The patients after reconstruction of the mandible may experience few limitations primarily in terms of psychological discomfort but these restrains did not have a significant impact on the overall quality of life of those patients.

Keywords: Oral Health; Mandibular Reconstruction; Egyptian Patients

Introduction

The mandible is the skeletal apparatus that supports the lower one third of the face and provides attachment for an abundant number of ligaments and muscles. Consequently it is critical to the cosmetic appearance of the facial region, in addition to, its major impact on speech, swallowing, chewing and speech, thus the integrity of the mandible and its related structures strongly affect both the functional and psychological aspects of life [1]. Surgical manipulation of the mandible, specifically, marginal or segmental resection, may contribute in disturbances within the oral behavior represented as dysfunctional, discomfort and psychological modifications with distinct consequences on the performance of the individual`s life [2]. Surgical reconstruction of the resected segment have a primary target of restoring those mentioned alterations along with an accepted aesthetic outcome [3,4].

The Oral Health Impact Profile (OHIP) is a self-rating patient centered instrument designed to assess oral and para-oral health conditions among individuals following dental or surgical treatment involving the dento-facial region. The OHIP-14 was developed as a shorter version of the OHIP-49. In order to evaluate it objectively, measuring instrument (OHIP-14) covering seven specific domains were originally developed and examined by Slade GD [5,6] as a profound assessment tool, it can not only help clinicians to assess patient's current oral state but also worked as an indicator to help researchers to monitor alterations in oral health-related quality of

life. For this reason, this proven approach has drawn increasing attention from research workers and clinicians in oral related fields. Subsequently, it was extensively used by academics from various branches of stomatology to assess the impact of different therapeutic approaches on oral health related quality of life of the patients [7].

Aim of the study

The aim of this study was to assess the Oral Health Impact Profile (OHIP) as an indictor for the quality of life of the who patients underwent mandibular reconstruction.

Patients and Methods

This study was conducted on thirteen patients who underwent mandibular resection followed by delayed mandibular reconstruction. The resection was performed for treatment of seven cases of ameloblastoma, three cases of keratocystic odontogenic tumor (K.O.T) and three cases of large dentigerous cyst.

The treatment protocol included a delayed mandibular reconstruction using anterior iliac crest grafts, which was performed for each case after six months of mandibulectomy. Conventional acrylic partial dentures were constructed 3 to 5 weeks following the reconstruction surgeries. All the constructed partial dentures were checked for stability during eating and speaking.

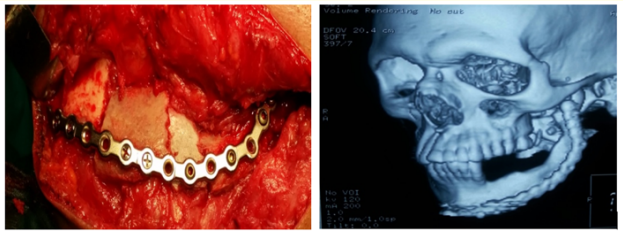

Figure 1-A Figure 1-B

Figure 1: Intraoperative photograph of the reconstruction procedure, 1-B: A radiograph showing the case six months following the reconstruction.

The individual quality of life was assessed subjectively by an Arabic version of the Oral Health Impact Profile (OHIP- 14). The evaluation was performed for each of the included patients (Study group). The evaluation was performed at six months after the construction of the prosthesis. Meanwhile, the same assessment parameters were done for twenty normal volunteers (Control group). The study group consisted of thirteen patients (5 females and 8 males) with age range from 33 - 51 years old (mean age 36.7 years), while the control group consisted of twenty volunteers (7 females and 13 males) with age range of 32 -50 years old (mean age 36.4 years), which is analogous to that of the study group.

Oral health impact profile (OHIP-14)

The OHIP-14 is a self-administered questionnaire that measures the quality of life using 14 items to capture measurements of seven dimensions, each dimension is measured by two questions. An Arabic version of the Oral Health Impact Profile (OHIP- 14) was used. The printed questionnaire was linguistically and culturally modified and offered for each individual within both groups.

For each of the fourteen OHIP questions, the subjects were asked how frequently they experienced the condition during the past six months. A rating scale was used for the responses, were never (0), rarely (1), infrequently (2), fairly frequent (3), very frequent (4). OHIP-14 is divided into seven categories (dimensions) as follows: Functional limitations (trouble pronouncing words, taste getting worse), physical pain (painful aching, uncomfortable to eat), psychological discomfort (self-conscious, tense), physical disability (diet unsatisfactory, interrupted meals), psychological disability (difficult to relax, being embarrassed), social disability (irritable with others, difficulty doing job), handicap (life unsatisfying, unable to perform work). The score range was 0 - 8 for each category, and 0-56 for the total OHIP score.

Results

The current study was conducted on a study group of thirteen patients, who underwent mandibular construction and a control group of twenty volunteers. Statistical analysis was performed for the records obtained from each individual within both groups regarding the score of different parameters of the Oral Health Impact Profile-14 (OHIP-14). Values were presented as mean and standard deviation (SD) values. Data was explored for normality using Kolmogorov-Smirnov test of normality. The results of Kolmogorov-Smirnov test indicated that most of data was normally distributed (parametric data), consequently unpaired t test was used to compare between the two groups. The significance level was set at $p \leq 0.05$. Statistical analysis was performed with SPSS 16.0 (Statistical Package for Scientific Studies, SPSS, Inc., Chicago, IL, USA) for Windows.

The total score of OHIP-14 was higher within the individuals of the study group, however, there was no statistically significant difference between the two groups (p = 0.16). Concerning the functional limitations, trouble pronouncing words recorded revealed a higher score in the study group with no significant difference (p = 0.67), while the taste score was the same for the two groups. Parameters of physical pain, physical disability, psychological disability, social disability and handicap recorded and showed higher scores in the study group, but with no significant difference between the two groups. Meanwhile, the two parameters of psychological discomfort described as self-conscious and been tense revealed a statistically significant higher score in the study group (Table 1, Figure 2 and 3).

	Study group		Control group		P-value
	Mean	SD	Mean	SD	
Functional limitations					
• Trouble pronouncing words	2.11	0.6	2	0.5	0.671
• Taste worse	2.33	0.87	2.33	0.87	
Physical pain					
• Painful aching	2.33	1.12	2.28	0.87	0.913
• Uncomfortable to eat	2.11	0.6	2.09	0.6	0.941
Psychological discomfort					
• Self-conscious	4.78	1.39	0.78	0.67	<0.0001*
• Tense	4	0.87	1	0.71	<0.0001*
Physical disability					
• Diet unsatisfactory	2.56	1.01	2.33	0.87	0.624
• Interrupted meals	2.89	0.78	2.78	0.83	0.774
Psychological disability					
• Difficult to relax	3	0.5	3.11	0.6	0.675
• Been embarrassed	2.78	0.971	2.89	0.33	0.75
Social disability					
• Irritable with others	3.44	0.53	3.11	0.6	0.229
• Difficulty doing job	1.78	0.83	1.67	0.72	0.755
Handicap					
• Life unsatisfying	1.79	0.83	1.99	0.71	0.569
• Unable to function	2.11	0.78	2.33	0.83	0.549
Total	38.01	11.68	30.97	9.71	0.16^{ns}

Table 1: The detailed and total score for Oral Health Impact Profile- 14 (OHIP-14) and significance of the difference between groups using unpaired t test.

ns=non-significant, *significant at p<0.05.

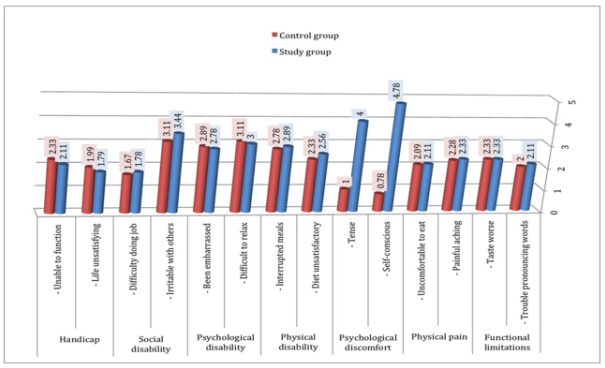

Figure 2: Bar chart showing the detailed score for Oral Health Impact Profile- 14 (OHIP-14).

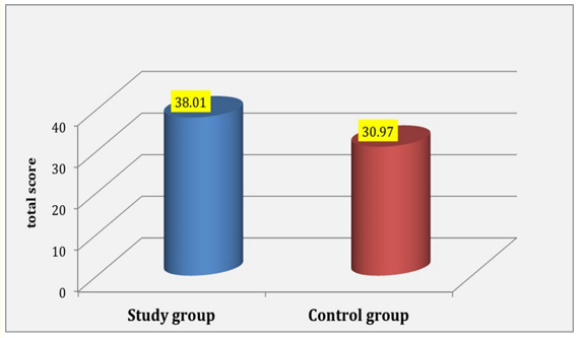

Figure 3: Column chart showing the total score for Oral Health Impact Profile- 14 (OHIP-14).

Discussion

The goal of mandibular reconstructive surgeries is to restore the integrity of the mandible, temporomandibular joints and a relatively normal soft tissue relationships of the oral cavity and associated structures. It is expected that patients who undergo a segmental mandibulectomy will experience major impairments in stomatognathic function, Therefore, numerous studies [8,9] have discussed the values and the advantages of bony reconstruction following mandibular resection.

An obvious benefit for bony reconstruction of the mandible in the general esthetic appearance, speech, mastication, and establishing of a foundation for dental rehabilitation was clearly verified by Urken., *et al.* [10] Moreover, Endo [11] reported that the electromyographic activities of masticatory muscles of patients with mandibular reconstruction were approximately the same as in normal individuals, while they were significantly reduced in patients without bony reconstruction. Wilson., *et al.* [12] reported that mandibular reconstruction considerably improved the overall quality of life (QoL) which was similarly reflected by the results of this study. In contrast, Schliephake., *et al.* [13] used the Functional Living Index – Cancer (FLIC) to asses the quality of life (QoL) of patients after ablative tumor surgery and reconstruction, they reported that bony reconstruction improved the overall facial look but did not improve deglutition or mastication, subsequently, and according to their observations, did not provide a significant increase in the quality of life. The difference in the assessment tool used in their study and that used for the current study, as well as, the effect of irradiation on the masticatory muscles may explain the discrepancies in the achieved results.

Oral Health Quality of Life (OHRQoL) is a relative perception based on the individual`s own experience and awareness. Thus it is important to apply a reliable and valid instrument to assess patients' OHRQoL in clinical practice [14]. In this study, the OHIP-14 was translated to Arabic following the guidelines of Al Habashneh., *et al* [15]. OHIP-14 is the most widely used guide in evaluating OHRQoL [16]. In the present study, the OHIP revealed no significant differences between the two groups for the subcategories of 'functional limitation', 'physical pain', 'physical disability', 'psychological disability', 'social disability', or 'handicap', however the ''psychological discomfort' of the study group was significantly more obvious than that of the control group. Questions about self- conscious during social situations was particularly more evident in the study group however it was not severe enough to the extent to be reflected on the level of psychological disability, in such instance, it is meaningful to emphasis on the cultural impact on the psychological discomfort subcategory of the individuals within the study group.

Conclusion

In conclusion, and as the results of the current study revealed, the patients who have undergone reconstruction surgery for mandibular discontinuity defects have gained functional and psychosocial benefits following this treatment modality. These benefits should be highlighted when discussing the treatment options with the patients preoperatively.

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