Changes in quality of life after surgical removal of impacted mandibular third molar teeth

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Abstract

Background The decision to get impacted teeth removed is not straightforward because of the concerns about its possible outcome. Assessment of quality of life is now regarded as an essential component for assessing outcomes of dental health care. The purpose of this paper is to assess the effect of impacted third molar teeth surgery on a number of health related outcomes.

Patients and methods A total of 72 patients undergoing surgical removal of their unilateral impacted mandibular third molar teeth were recruited to participate in this study. Patients were asked to complete two questionnaires, 14-item Oral Health Impact Profile (OHIP-14) and the 16-item UK Oral Health related Quality of Life measure questionnaire (OHQOLUK-16) daily for one week following surgery.

Results There was significant decrease in the mean OHQOLUK-16 score and OHIP-14 scores for the first five postoperative days. There were no significant differences in changes in the mean OHIP-14 scores or OHQOLUK-16 scores on postoperative day 6 and 7.

Conclusion There was a significant deterioration in oral health related quality of life in the immediate postoperative period, which slowly returned to preoperative level by day 6. This information may be useful in creating realistic expectation for patients who are considering third molar surgery.

Keywords Third molar surgery · Oral health · Oral surgery · Surgical removal

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Introduction

Surgical removal of impacted third molars under local anesthesia is a common procedure within both general dental practice as well as in most hospital oral and maxillofacial surgery departments [1,2]. The procedure is associated with various postoperative sequelae like pain, swelling, trismus and sensory disturbances. Decision, to get impacted tooth removed is not straightforward. Study by van der Sanden et al. has shown that the provision of selected literature also significantly influences treatment decision making by dentists [3]. Zadik and Levin found that decision of prophylactic removal of third molars varies amongst dentists more dentists recommended extraction of disease-free third molars in 35-year-old than in 19-year-old patients. They concluded from the study that decision

making regarding third molar treatment is not evidence-based and is not rational [4]. Misunderstandings about the possible outcomes of surgery results in negligence by the patient particularly if no symptoms are present [5]. Dental surgeons are expected to forewarn patients of these likely side effects of the procedure. While great body of literature exists about possible signs and symptoms following third molar surgery, little is known about their consequences on patient's life quality [6,7]. Assessment of quality of life (QoL) has been carried out for several decades in medicine but because of virtual absence of indices to measure quality of life as it relates to oral health, only recently it is been employed in the dental care [8]. Now a day, QoL assessment is now regarded as an essential component for assessing outcomes of dental health care [9]. Impressive range of questionnaires have been developed that

assess the impact of oral conditions and interventions on patient well being and QoL. They are also valuable in assessing the quality and effectiveness of various available treatment approaches [10].

This study was designed to further understand the recovery after third molar surgery by using 2 instruments to measure quality of life outcomes.

Method

A total of 72 asymptomatic patients aged between 18 and 45 years, who were undergoing surgical removal of their unilateral horizontal impacted (bony) mandibular third molar teeth at the Dental and Oral Surgery department of Lady Hardinge Medical College and associated hospital, New Delhi were recruited to participate in this study between April 2004

and March 2005. Reasons for exclusion from the study included: - hepatic disease, renal disease, diabetes mellitus, hypertension, peptic ulcer, pregnancy, concurrent treatment with immunosuppressant, corticosteroids, history of NSAIDs use in past 10 days, known allergy to NSAIDs and evidence of infection at surgical site. Following the procedure standard postoperative instructions were given and standard analgesic (ibuprofen) was prescribed to all the patients. On the day of surgery, preoperatively the patients were asked to complete two questionnaires; 14- item Oral Health Impact Profile (OHIP-14) [11] and the 16-item UK Oral Health related Quality of life measure questionnaire (OHQOLUK-16) [12]. Patients were asked to read the items in the questionnaire and seek clarification from the study coordinator when required. Patients were instructed to complete the questionnaire daily for 7 days postoperatively beginning the day after the surgery.

Data analysis

For OHIP-14 questionnaire each item was scored: never- score 0, hardly ever- score 1, occasionally- score 2, fairly often- score 3, very often- score 4. The possible total score range from 0 to 56; higher the scores the poorer the QoL.

For OHQOLUK-16 questionnaire each item was scored: very bad effect- score 1, bad effect- score 2, no effect- score 3, good effect- score 4, very good effect- score 5. Total score range from 16 to 80 such that a lower OHQOLUK-16 score indicate poorer quality of life.

For analysis total score was derived by summing the scores given to individual question in both the questionnaires separately. Variation in the quality of life scores between preoperative and postoperative states were assessed employing paired student's 't' test.

Results

All the patients enrolled completed the questionnaires. Among the study participants 41.67% were females and 58.33% were males. The mean age of study subjects was 26.47 years. In the immediate postoperative period following surgery there was a significant decrease in the QoL among the participants as compared to the preoperative status.

Table 1 OHIP-14 scores (Mean±SEM)

Day	0 (baseline)	1	2	3	4	5	6	7
Mean	2.43	31.53	22.86	16.18	11.31	7.931	3.35	2.57
± SEM	±0.14	±1.66	±1.62	±1.66	±1.58	±1.32	±0.80	±0.69
P value		0.000	0.000	0.000	0.000	0.000	0.247	0.844

Table 2 OHQOLUK-16 scores (Mean±SEM)

Day	0 (baseline)	1	2	3	4	5	6	7
Mean	53.92	36.88	41.38	45.40	48.69	51.25	52.50	53
± SEM	±1.01	±1.04	±1.10	±1.14	±1.19	±1.17	±1.11	±1.14
P value		0.000	0.000	0.000	0.000	0.004	0.092	0.289

The mean OHIP-14 scores are presented in Table 1. Significant increase in the mean OHIP-14 scores was seen on postoperative day1 (POD 1) ($p=0.000$), POD2 ($p=0.000$), POD3 ($p=0.000$), POD4 ($p=0.000$), POD5 ($p=0.000$) in comparison to preoperative score.

The mean values for OHQOLUK-16 scores are given in Table 2. There was a significant decrease in the mean OHQOLUK-16 score on POD1 ($p=0.000$), POD2 ($p=0.000$), POD3 ($p=0.000$), POD4 ($p=0.000$), POD5 ($p=0.004$) in comparison to preoperative score.

There were no significant differences in changes in the mean OHIP-14 scores or OHQOLUK-16 scores on POD6 and POD7.

OHQOLUK-16 scores showed that severe difficulty in eating was experienced in 47(65.3%) patients on day 1. The symptom improved over the first week with 1 patient reporting this symptom by day 7. Speech was affected in 27(37.5%) patients on day 1 and by day 5 only 1 patient had this problem. Bad breadth was reported by 10(13.9%) patients on day 1 out of these 7 patients were found to have poor oral hygiene. By day 3 only 2(2.8%) patients had this symptom. 8(11.1%) patients experienced a low self-confidence on day 1.

Limitation in daily routine was experienced by 16 (22.2%) patients on day 1 with the number of patients decreasing to 6 (9.7%) by day 2 and by day 7 just 1 patient reported this problem.

Discussion

Clinical experience tells us that patients experience certain difficulties following removal of impacted third molar teeth. However, in the past there was lack of data recording changes in aspects that may

influence the quality of patient's life but now QoL assessment is regarded as an essential component for assessing outcomes [9,13]. Although different methods have been used to assess QoL, it can be difficult to measure as it may mean different things to different people. Moreover, it depends upon patient's own perception. Thus such measures are subjective and multidimensional [14].

Results from our study showed that the surgical removal of impacted teeth exerted an influence on patient's QoL across various physical, social, psychological aspects of life such as limitation in daily routine, ability to chew food, ability to open mouth, ability to speak, self confidence. A significant deterioration was seen for first five postoperative days as measured by both OHIP-14 scores and OHQOLUK-16 scores. Shugars et al. [15] used a 14-item instrument to measure patient's perception of their experience after the removal of third molar teeth and found that patients may experience some symptoms and limitation of activity for five days or less post surgery. Savin and Ogden [13] designed a questionnaire to assess the effect of third molar surgery on a number of measures of health care outcome within the first postoperative week including level of physical discomfort, oral (ability to chew food, swallow food, enjoyment of food, ability to open mouth, taste of food), vocal function, patients perception of their appearance and social interaction and similar to our study concluded that within first postoperative week some patients can experience deterioration in their quality of life and which show little improvement in first postoperative week. Similar to our study Mc Grath et al. [16] also showed deterioration in quality of life in the immediate postoperative period following third molar surgery as measured by OHIP-14 scores and OHQOLUK-16. White et al

Appendix -1

OHIP-14 SCALE		Day						
		0	1	2	3	4	5	6 7
Function limitations	Had trouble pronouncing words or felt their sense of taste had worsened.							
Physical pain	Had a painful aching in their mouth or found it uncomfortable to eat any foods.							
Psychological discomfort	Have been self-conscious or felt tense.							
Physical disability	Had an unsatisfactory diet or had to interrupt meals.							
Psychological disability	Found it difficult to relax or have been a bit embarrassed.							
Social disability	Have been irritable with other people or had difficulty doing usual jobs.							
Handicap	Felt life in general was less satisfying or have been totally unable to function.							
Key for scoring								
<i>Symptom</i>	<i>Score</i>							
never	0							
hardly ever-	1							
occasionally	2							
fairly often	3							
very often score	4							

Appendix -2

OHQOLUK-16 SCALE		Day						
		0	1	2	3	4	5	6 7
Symptom level	Comfort Breath odour							
Body function level	Eating Appearance General health Speech Smiling/laughing							
At person level	Relax/sleep Confidence Mood Carefree manner Personality							
At social level	Social life Romantic relationship Work/usual jobs Finance							
Key for scoring								
<i>Symptom</i>	<i>Score</i>							
Very bad	1							
Bad	2							
No effect	3							
Good effect	4							
Very good effect	5							

reported that the median number of days required to return to daily activity and social life after third molar surgery was

three with recovery for chewing and return to regular diet taking five to seven days respectively [17]. Shugars et al. (2006)

further assessed the recovery after third molar surgery by using two different scales. The authors concluded that percent of patients reporting items ‘fairly often’ or ‘very often,’ (OHIP-14) increased from presurgery on postoperative day 1 and then decreased on postoperative day 7 and 14 [18]. Recently Colorado-Bonnin et al. [19] also concluded from their study that lower third molar surgery significantly affects patient’s quality of life, particularly during the first 3 days after removal.

Conclusion

There was a significant deterioration in oral health related quality of life in the immediate postoperative period particularly POD 1 following third molar surgery, which slowly returns to preoperative level by 6th day. With increasing emphasis being placed on the impact of disease and its management on the patients quality of life rather than merely in terms of symptom profile further studies are required in this direction. This information of quality of life outcome from the present study is in accordance with the previous studies, and so reinforces the usefulness of the information in improving surgeon’s ability to inform patients about what to expect if removal of third molars is elected/planned. Moreover, this information may create realistic expectation for patients considering third molar surgery as patients have a right to know if their lifestyle is to be compromised by effects of their treatment.

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