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ORIGINAL RESEARCH

Comparison of Postoperative Symptom Severity (PoSSe) Scores in patients undergoing Mandibular Third Molar surgery in Ile-Ife, Nigeria

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Abstract

Background: The Postoperative Symptom Severity (Posse) score is useful in the assessment of patients after third molar surgery.
Objective: To evaluate patients' perceptions of quality of life after surgical extraction of an impacted mandibular third molar by comparing their Post-operative Symptom Severity (PoSSe) scores at Post-operative Weeks (POW) 1 and 4.
Methods: Seventy patients (age 18 to 35 years) at the Out-Patient Department were enrolled in a prospective study before surgical removal of third molars. Each patient was given a PoSSe questionnaire to be completed at POW 1 and POW 4. The scale assessed recovery in seven critical domains on patients' subjective feeling about pain, eating, speech, sensation, appearance, sickness and interference with daily activities.
Results: All but one patient returned completely filled questionnaires. The mean age of the study population was 25.7 ± 4.5 years. The mean PoSSe score at POW 1 and POW 4 were 35.0 ± 7.2 and 33.2 ± 6.9 respectively with statistically significant difference (p = 0.010). The PoSSe score was higher among males compared to females at POW 1 (37.2 ± 7.6 vs 33.5 ± 6.6) and also higher among males at POW 4 (33.8 ± 9.4 vs 32.7 ± 4.6).
Conclusion: The severity of symptoms was perceived to be worse at POW 1 when compared to POW4, but the symptoms were still severe at POW4. There is a need for surgeons to pay more attention to the management of symptoms in the intermediate postoperative period.

Keywords: Adverse effects, Post-operative complication, Post-operative Symptom Severity, Third molar surgery, Quality of life.

Introduction

The removal of impacted mandibular third molars is one of the most common procedures performed by the oral and maxillofacial surgeon. [1,2] Pain, facial oedema and trismus are the common sequelae following molar surgery. These features result in changes in patients' perceived quality of life (QoL). The measurement of quality of life is essential in

evaluating the process and outcome of treatment. [3] Patient's post-operative perception of their oral health-related quality of life after mandibular third molar surgery has been reported to be valuable in assessing treatment outcome. [2] Several instruments such as the short form 36 (SF-36), oral health impact profile (OHIP), oral health-related quality of life (OHRQoL), [4, 5] have been developed to assess oral health-related quality of life. Unlike these generic instruments, the Post-operative Symptom Severity (PoSSe) scale was explicitly designed to assess the oral health-related quality of life after third molar surgery. [6] The questionnaire was formulated through a rigorous process and included additional questions on issues that may affect patients' quality of life but which are often ignored by clinicians or accepted as an inevitable part of the procedure. The score generated is a valid, reliable and responsive measure of surgical outcomes and their impact on the quality of life from the patients' perspective. It is more sensitive than the Short Form 36-item and has a potential for widespread use in dental research and practice. [6] While numerous studies have documented these post-operative complications, [7-10] and the techniques of minimizing them, [11, 12] the quality of life studies have focused on patients' recovery from third molar surgery in the immediate post-operative period. [13-17] Relatively little is known about their effects on patient's life quality beyond the immediate post-operative period, [16, 18] in spite of a large number of mandibular third molar surgical procedures undertaken. [1] Therefore, this study aimed to evaluate patients' perceptions of their quality of life after surgical extraction of an impacted mandibular third molar by comparing their post-operative symptom severity (PoSSe) scores at the Post-operative Weeks 1 and 4.

Methods

Seventy consenting participants who had surgical extraction of unilateral mandibular third molar teeth were consecutively recruited from the Oral and Maxillofacial Surgery Clinic of the Obafemi Awolowo University Teaching Hospital Complex, Ile-Ife, Nigeria and prospectively followed up between October 2017 and June 2018. All the participants were apparently healthy patients (American Society of Anaesthesiologists Classification- ASA 1) between the ages of 18 to 35 years. Exclusion criteria included lack of consent, refusal of long term follow up, presence of peptic ulcer disease, pregnancy or lactation, and visual impairment.

The pre-operative data obtained from the participants included: sociodemographics, indication for extraction, Pederson Difficulty Score, and associated pathology. Ethical clearance was obtained from the Ethics and Research Committee of the hospital before the commencement of the study and all the patients gave written informed consent.

The same surgeon performed all the surgeries under local anaesthesia (using 2% lignocaine with 1:100.000 epinephrine). Intra-operative data obtained included; the amount of local anaesthetic agent used, tooth delivery method and duration of surgery. The participants were placed on antibiotic prophylaxis (Caps Amoxicillin 500mg 8-hourly for five days and Tabs Metronidazole 400mg 8-hourly for five days) and analgesics (Tabs Ibuprofen 400mg 8-hourly for three days). The participants were also given standard post-operative instructions (such as avoiding cigarette smoking,) verbally and in written form and were educated to do warm saline mouth bath hourly, eight times daily until the seventh postoperative day. Baseline data were collected, and the patients were given the questionnaire to complete on POW 1 (immediate postoperative period).

The patients were also reviewed at POW 4 (intermediate postoperative period) and were likewise told to complete the questionnaire. The questionnaire comprised questions on patients' subjective feelings about pain, eating, speech, sensation, appearance, sickness and interference with daily activities. The scores for each domain ranged from 0 to a predetermined maximum, which varied with the domains. The scores for the responses to each question were then summed in such a way that the most severe response category for each item would score 100% while least severe response category for each question would score 0%.

Data analysis was done using IBM SPSS version 20.0. Descriptive statistics were done for socio-demographic variables such as age, gender, marital status and occupation. The mean (and standard deviation) was determined for descriptive variables that are continuous while for categorical variables, frequencies and percentages were determined. Statistical analysis was done using Intention- To- Treat analysis. In addressing the objectives, the mean PoSSe scores were determined for PO Week 1 and 4 for males and females. These mean values were compared using the Paired t-test.

Results

Seventy participants were recruited for the study. One participant returned an incompletely filled questionnaire. Majority (41; 58.6%) of the participants were females. The mean age of the sample population was 25.7 ± 4.5 years. A majority (84.3%) of the population were of Yoruba ethnic origin while 75.7% were students (Table I).

There were mesioangular and distoangular impactions among 34.3% and 15.7% of the cases, respectively. Pericoronitis was the indication for extraction in 72.9% of the cases. Most (74.3%) of the impacted mandibular third molars had a moderate Pederson Difficulty score with only 17.1% having a difficult Pederson score. (Table II). The mean volume of the local anaesthetic agent used was 3.9 ± 0.7mls, while the mean duration of surgery was 30.2 ± 8.7 minutes. Ostectomy with elevation/forceps accounted for 72.9% of the methods used for extraction (Table III).

The mean PoSSe score at POW 1 was 35.0 ± 7.2 while it was 33.2 ± 6.9 in week POW 4. This difference was statistically significant ($p = 0.010$), as shown in Table IV. The PoSSe score was higher among the males compared to females at POW 1 (37.2 ± 7.6 vs 33.5 ± 6.6) and also higher among males at POW 4 (33.8 ± 9.4 vs 32.7 ± 4.6) but the gender difference was only statistically significant at POW 1 ($p = 0.041$) as shown in (Table IV).

Discussion

The knowledge of how and to what extent, third molar surgery interferes with patients' quality of life beyond the immediate post-operative period is crucial as it enables the patients to have a realistic expectation of surgical outcome. It also allows the dentist and surgeon to plan therapeutic interventions targeted at quicker recovery with minimal interference with patients' daily activities during the intermediate postoperative period.

The findings in the present study indicate that third molar surgery interfered with patients' quality of life in the two periods studied. Earlier studies [16-20] have similarly shown deterioration in the quality of life following surgery. However, the use of generic questionnaires not explicitly validated in third molar surgery in those earlier studies makes an accurate comparison of results impossible. Ruta *et al*., [6] compared PoSSe scale with the Short Form 36-

item Health Survey and found it to be more responsive in assessing recovery with better internal validity.

Table I: Socio-demographic characteristics of participants

Characteristics	Frequency	Percentage
Gender		
Male	29	41.4
Female	41	58.6
Ethnicity		
Igbo	8	11.4
Yoruba	59	84.3
Others	3	4.3
Occupation		
Student	53	75.7
Government employed	9	12.9
Privately employed	8	11.4
Education		
None Formal	0	0.0
Primary	0	0.0
Secondary	3	4.3
Tertiary	67	95.7

KEY: Age in years (mean ± SD) = 25.7 ± 4.5 years

Table II: Pre-operative characteristics of participants

Variable	Frequency	Percentage
Impaction Type		
Mesioangular	24 (34.3)	34.3
Horizontal	17 (24.3)	24.3
Vertical	18 (25.7)	25.7
Distoangular	11 (15.7)	15.7
Indications		
Pericoronitis	51 (72.9)	72.9
Apical periodontitis	16 (22.9)	22.9
Irreversible pulpitis	2 (2.9)	2.9
Orthodontic reasons	1 (1.4)	1.4
Associated Pathology		
No pathology	6 (8.6)	8.6
Pocket	48 (68.6)	68.6
Pocket + Caries	16 (22.9)	22.9
Pederson Score		
Easy	6 (8.6)	8.6
Moderate	52 (74.3)	74.3
Difficult	12 (17.1)	17.1

Table III: Intra-Operative Characteristics

Variable	Mean ± SD
Amount of LA used (mls)	3.9 ± 0.7
Duration of Surgery (mins)	30.2 ± 8.7
Method of Extraction	**Freq (%)**
Ostectomy + elevation/forceps	51 (72.9)
Ostectomy + coronal section	14 (20.0)
Complex extraction (root resection)	5 (7.1)

Table IV: Comparison of PoSSe scores at postoperative week 1 and week 4 and between males and females

Variable		Mean ± SD	p-value	Males Mean ± SD	Females Mean ± SD	p-value
PoSSe POW 1	**score**	35.0 ± 7.2	0.010*	37.2 ± 7.6	33.5 ± 6.6	0.041*
PoSSe POW 4	**score**	33.2 ± 6.9		33.8 ± 9.4	32.7 ± 4.6	0.576

Not surprisingly, higher scores were reported for pain while the overall PoSSe scores were higher at POW 1 compared to POW 4. Pain is a significant complaint after surgery, which necessitates the use of effective analgesic therapies as used in this study. Also, the severity of symptoms gradually reduced as the effect of inflammation and haematoma subsided. It is noteworthy that in spite of gradual reduction between POW 1 and POW 4, the PoSSe scores remained high even at POW 4. Indeed, Colorado-Bonnin *et al.* [18] reported that post-operative pain decreased but did not return to baseline values even at seven days post-surgery. However, other reports contend that the symptoms were limited to the immediate post-operative period. [16-17] However, these studies did not assess recovery beyond the immediate postoperative period and the instrument used did not make provision for assessment beyond this period. We believe this is a significant limitation of the generic tools used to assess recovery after third molar surgery. Currently, there is no consensus on the ideal instrument to measure recovery, but PoSSe is more sensitive because it is designed specifically for third molar surgery and it can be used to assess the outcome in the intermediate period. Emphasis is placed on the patient's perception of recovery as against the surgeon reported outcome. [6] The patients perceived their quality of life to be affected up to a month after surgery; hence, surgeons need to pay attention to post-operative management in the intermediate period.

Higher scores were recorded for males when compared to females at both POW 1 and POW 4. Therefore, males perceive their symptoms to be more severe than female at both time points. While the reason for this finding is not immediately known, the narrow age range of the study population may be responsible. It is recommended that a larger sample size, including subjects older than 35 years is desired, to enable a careful analysis of the various domains adding up to the score. The two recent Nigerian studies, [16, 17] used generic quality of life questionnaires containing other domains such as sleep impairment and dysphagia to assess recovery in the immediate post-operative period. That limits the extent of comparison between the present study and the previous studies. Further, the findings from the present study cannot be generalized to the whole country since it was derived from a convenient sample in a single institution. The correlation of

higher PoSSe score with increasing difficulty index may have enabled further validation of the scale in this population, but this could not be done in the present study due to skewing of date with the majority having a moderate index.

Conclusion

The severity of symptoms was perceived to be worse at POW 1 when compared to POW4. However, the symptoms were still severe at POW4. There is a need for surgeons to pay more attention to the management of symptoms in the intermediate postoperative period.

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References

1. Miloro M, Ghali GE, Larsen PE, Waite PD, Decker BC. Peterson's Principles of Oral and Maxillofacial Surgery. Second Edition, Inc Hamilton. 2004.

2. Adeyemo WL, Taiwo OA, Oderinu OH, Adeyemi MF, Ladeinde AL, Ogunlewe MO. Oral health-related quality of life following non-surgical (routine) tooth extraction: A pilot study. Contemp Clin Dent 2012; 3: 427–432.

3. Morton RP. Quality of life assessment: integral to clinical practice. Clin Otolaryngol 1996; 21: l-2.

4. Slade GD, Spencer AJ. Development and evaluation of the oral health impact profile. Community Dent Health 1994; 11: 3–6.

5. Fernandes MJ, Ruta DA, Ogden GR, Pitts NB, Ogston SA. Assessing oral health-related quality of life in general dental practice in Scotland: validation of the OHIP-14. Community Dent Oral Epidemiol 2006; 34(1): 53-62.

6. Ruta DA, Bissias E, Ogston S, Ogden GR. Assessing health outcomes after extraction of third molars: the postoperative symptom severity (PoSSe) scale. Brit J Oral Maxillofacial Surg 2000; 38: 480–487.

7. Blondeau F, Daniel NG. Extraction of impacted mandibular third molars: postoperative complications and their risk factors. J Can Dent Assoc 2007; 73(4): 325-329.

8. Gbotolorun OM, Olojede A, Arotiba G, Ladeinde A, Akinwande J, Bamgbose B. Impacted mandibular third molars: presentation and postoperative complications at the Lagos University Teaching Hospital, Nigerian Q J Hospital Med 2006; (17)1: 26-29.

9. Osunde O, Saheeb B, Bassey G. Indications and risk factors for complications of lower third molar surgery in a Nigerian Teaching Hospital. Ann Med Health Sci Res 2015; 4(6): 938-942.

10. Bello SA, Adeyemo WL, Bangbose BO, Obi EV, Adeyinka AA. The effect of age, impaction types and operative time on inflammatory tissue reactions following lower third molar surgery. Head Face Med 2011; 3(7) : 40-49.

11. Ogundipe OK, Ugboko VI, Owotade FJ. Can Autologous Platelet-Rich Plasma Gel Enhance Healing After Surgical Extraction of Mandibular Third Molars? J Oral Maxillofac Surg 2011; 69: 2305-2310.

12. Olurotimi AO, Gbotolorun OM, Ibikunle AA, Emeka CI, Arotiba GT, Akinwande JA. A comparative clinical evaluation of the effect preoperative and postoperative antimicrobial therapy on postoperaive sequalee after impacted mandibular third molar extraction. J Oral Maxillafac Res. 2014; 2(5): 1-6.

13. McGrath C, Comfort MB, Lo EC, Luo Y. Changes in life quality following third molar surgery—the immediate postoperative period. Br Dent J 2003; 194 (5): 265–268.

14. Savin J, Ogden GR. Third molar surgery—a preliminary report on aspects affecting quality of life in the early postoperative period. Br J Oral Maxillofac Surg 1997; 35(4): 246–253.

15. Van Wijk A, Kieffer J.M, Lindeboom J.H. Effect of third molar surgery on oral health-related quality of life in the first postoperative week using Dutch version of oral health impact profile-14. J Oral Maxillofac Surg 2009; 67(5): 1026–1031.

16. Braimah RO, Ndukwe KC, Owotade FJ, Aregbesola SB. Oral health related quality of life (OHRQoL) following third molar surgery in Sub-Saharan Africans: an observational study. Pan Afr Med J 2016; 25: 97.

17. Ibikunle AA, Adeyemo WL. Oral health related quality of life following third molar surgery in an African population. Contemp Clin Dent 2017; 8(4): 545–551.

18. Colorado-Bonnin M, Valmaseda-Castellon E, Berini-Aytes L, Gay-Escoda C. Quality of life following lower third molar removal. Int J Oral Maxillofac Surg 2006; 35(4): 334-343.

19. White RJ, Shugars DA, Shafer DM, Laskin DM, Buckley MJ, Phillips C. Recovery after third molar surgery: clinical and health related quality of life outcomes. J Oral Maxillofac Surg 2003; 61(5): 535–544.

20. Gabric PD, Brozovic J, Susic M, Katanec D, Bego K, Kobler P. Assessing health-related quality of life outcomes after the surgical removal of a mandibular third molar. Coll Anthropol 2009; 33(2): 437–444.