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PATIENT'S REASONS FOR SOCIAL ISOLATION FOLLOWING EXTRACTION OF IMPACTED MANDIBULAR THIRD MOLAR IN A TERTIARY HOSPITAL IN NORTH-WEST NIGERIA: A PROSPECTIVE STUDY.

Oral & Maxillofacial Surgery

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ABSTRACT

Introduction: Impacted mandibular third molars (IMTMs) are frequently seen in the field of oral and maxillofacial surgery and can have a negative impact on the quality of life (QoL) after surgery. **Methodology:** It was a prospective study that was carried out at the Department of Oral and Maxillofacial Surgery in a tertiary hospital in north-west Nigeria, between June 2020 and March 2021. Healthy adults ≥ 18 years who meet the inclusion criteria and consent to surgical removal of IMTMs under local anesthesia were recruited. Patients were randomized into three groups, with patients on oral dexamethasone (Group 1), endo-alveolar dexamethasone (Group 2), and no dexamethasone (Group 3, control). Information on patients' demography, types of impactions, operative parameters and complications were obtained and analysed using IBM SPSS Version 25. P ≤ 0.0.5 was considered significant. **Results:** All the groups experienced a significant reduction in QoL on POD1 (postoperative day 1) relative to pre-operative values. Group 3 recorded the worst QoL scores of all domains and there were statistically significant differences on POD1 and POD7. Groups 1 and 2 showed faster recovery and better QoL. However, Group 2 reported the best outcome on POD7. Patients reached peak of social isolation because of malaise, pain, swelling, and changed physical appearance on POD1, and the values waned gradually by POD7. **Conclusion:** Surgical extraction of IMTMs has adverse effects on postoperative QoL, especially in the absence of steroids. Dexamethasone, particularly through endo-alveolar route is recommended in the improvement of QoL and less social impairment after IMTM surgery.

KEYWORDS

Third molar impaction, Surgical extraction, Quality of life, Oral Health Impact Profile-14 (OHIP-14), Social isolation.

INTRODUCTION

Impacted tooth is a tooth which is completely or partially unerupted and is positioned against another tooth, bone or soft tissue so that its further eruption is unlikely, described according to its anatomic position [1]. The expected time of eruption of third molars is between 18 and 25 years of age[2]. However, the pattern of eruption and dental anatomy has significant impact on oral health and quality of life[2]. It has also been reported that the third molar eruption varies with races, such as in Nigeria and may erupt as early as 14 years and in Europe it may erupt up to the age of 26 years[1]. Factors such as the nature of the diet that may lead to attrition, reduced mesiodistal crown diameter, degree of use of the masticatory apparatus and genetic inheritance also affect the timing of third molar eruption[3]. The prevalence of impacted mandibular third molars has been reported to be in the range of 9.5% to 68.6% [4]. However, a Nigerian study reported a prevalence of 16.7% which is lower than the value reported by Montelius 32%, Hasan 40.8%, Hattab et al, 33%, Eliasson et al, 30.3% and Rajasuo et al, 38%[2]. Most of the researchers suggest that the females have a higher incidence of mandibular third molar impaction when compared to males[5]

METHODOLOGY

This study is a prospective study that was conducted at the Department of Oral and Maxillofacial Surgery in a tertiary hospital in north-west Nigeria between June 2020 and March 2021. Approval for the study was obtained from the Health Research and Ethics Committee of the hospital. Patient consent was obtained.

Healthy patients above 18 years and older with an impacted third molar tooth not previously treated and requiring surgical removal under local anesthesia, not on any antibiotics or anti-inflammatory agents were included. Patients that had severe illness, allergic reaction to steroids, acute symptoms (acutely infected wisdom teeth), suppurative infections (pericoronitis, abscess), mobile teeth, specific medical contraindications to the use of steroids (gastrointestinal tract ulcer, diabetes, glaucoma, etc.) pregnant or lactating women were excluded.

Oral health impact profile-14 (OHIP-14)[6],pain questionnaire and measuring tape were among the instrument used in assessing QoL, pain and swelling pre and postoperatively.

Patients were randomized into three different groups (1,2 and 3) using computer-generated random numbers. Randomization was done by a trained research assistant and the allocation sequence were concealed from the patient and the assessor by using sequentially numbered, opaque, sealed, and stapled envelopes.

Oral and endo-alveolar 4mg dexamethasone was administered to Groups 1 and 2 patients accordingly, while Group 3 (control group) received no dexamethasone following the surgical removal of IMTMs (impacted mandibular third molars). Thirty minutes prior to the procedure, each patient rinsed the mouth with 15mls of 0.12% Chlorhexidine for 1 minute. All surgical procedure were carried out under local anesthesia (2% Lignocaine hydrochloride with 1: 80,000 adrenaline) and under identical standardized technique and conditions according to Hassan7. All the four types of impactions (mesio-angular, disto-angular, vertical and horizontal) according to winters classification were included in this study8. Buccal guttering technique was used in the removing of the IMTMs and average time taken for the removal of the impacted tooth was between 11-18 mins. Post-operative antibiotics and analgesics (Amoxicillin capsule 500mg, 8hourly for 5 days, Metronidazole tablet 400mg, 8hourly for 5 days after surgery, Ibuprofen tablet 400mg per oral after the surgery and then 8 hourly for 3 days) were given to all the patients, commencing 30 minutes after the surgery.

A review appointment was scheduled for postoperative days 1,3 and 7. Patients were asked to complete the questionnaire (OHIP-14)6. Oral health impact profile -14 (OHIP-14) is a standard tool used in measuring quality of life in this study. The lowest obtainable score is 14 and the highest is 56. For OHIP-14, there are 7 domains: (1) Functional limitation, (2) Physical pain, (3) Psychological discomfort,

(4) Physical disability, (5) Psychological disability, (6) Social disability, (7) Handicap. These domains have several symptoms that were assessed as shown in Table 1. Each item was scored: Not at all- score 1; A little- score 2; Quite a lot- score 3; Very much- score 4. Therefore, the minimum score possible was 14, while the maximum score possible was 56. Lower OHIP-14 scores, depicts better QoL, while higher score, depicts worse QoL.

RESULT

Table 1 depicts OHIP-14 domain scores among the three groups in the preoperative and postoperative evaluation points. On POD1 (post-operative day 1), there is poor QoL (Quality of Life) in all the domain scores as compared to pre-operative values among the three groups. Group 3 exhibited the worst QoL with statistically significant differences in all the domains on POD 1 and POD7. On POD3, the domain scores and overall QoL have improved and by POD7, there is better QoL as compared to pre-operative values with Groups 1 and 2 having a better QoL outcome as compared to the preoperative evaluation point. However, Group 3 did not attain good QoL at POD7 as compared to pre-operative values.

Table 2 shows the percentage reasons for social isolation among the subjects in all the groups.

The five factors listed as the reasons for social isolation in this study include; pain, swelling, physical appearance, Badmood and malaise. The percentage of subjects that reported these five factors to be the reasons for their social isolation were seen as 38.1% on POD 1, this value reduced to 25.4% on POD 3 and approximating its preoperative value on POD 7 as 15.9%. The preoperative value for these subjects was 14.3%. The subjects that reported four of the factors as reasons for their isolation was 54.0% on POD 1, 27.5% on POD 3 and 9.0% on POD 7. The single most reported reason for social isolation by the subjects was found to be malaise with percentage value of 40.7% on POD 1, 18.5% on POD 3 and 5.8% on POD 7. Those that reported pain and malaise alone was 19.6% on POD 1,6.9% on POD 3 and 3.2% on POD 7, while those that reported three of the factors (pain, badmood and malaise) as the reason for social isolation were seen as 15.3% on POD 1, 5.3% on POD 3 and 3.7% on POD 7. All these values reduced gradually from POD1 through POD 3 to POD 7 in all the postoperative days.

Table 1 depicts OHIP-14 domain scores among the three groups in the preoperative and postoperative evaluation points

Pre-operative	Group 1	Group 2	Group 3	p-value
Functional limitation	2.13±0.34	2.14±0.35	2.14±0.44	0.99
Physical pain	4.03±1.18	4.65±1.17	3.32±0.67	0.0001
Psychological discomfort	2.83±1.09	3.17±0.91	2.78±0.83	0.045
Physical disability	3.49±1.06	3.52±0.91	2.49±0.64	0.0001
Psychological disability	4.57±1.56	5.19±1.42	3.46±1.01	0.0001
Social disability	2.75±0.78	2.75±0.65	2.19±0.40	0.0001
Handicap	3.27±0.81	4.19±1.13	3.37±0.81	0.0001
POD1				
Functional limitation	6.63±0.90	6.65±0.74	7.38±1.52	0.0001
Physical pain	10.54±2.11	10.51±1.72	12.87±1.34	0.0001
Psychological discomfort	9.27±2.43	8.10±1.73	11.29±1.68	0.0001
Physical disability	9.40±2.24	8.38±1.69	10.73±1.42	0.0001
Psychological disability	10.56±2.49	10.44±1.80	12.90±1.76	0.0001
Social disability	7.56±1.47	7.02±0.85	8.92±1.18	0.0001
Handicap	9.08±1.53	11.05±1.52	12.75±1.59	0.0001
POD 3				
Functional limitation	4.54±0.69	4.63±0.70	4.79±0.85	0.16
Physical pain	7.30±1.52	7.59±1.36	8.08±0.89	0.003
Psychological discomfort	6.05±1.64	5.63±1.21	7.03±1.05	0.0001
Physical disability	6.44±1.53	5.95±1.22	6.60±0.93	0.011
Psychological disability	7.46±2.00	7.78±1.60	8.13±1.28	0.08
Social disability	5.14±1.06	4.86±0.72	5.54±0.69	0.0001
Handicap	6.19±1.11	7.63±1.24	8.02±1.04	0.0001
POD 7				
Functional limitation	2.11±0.32	2.02±0.13	2.70±0.80	0.0001
Physical pain	3.29±0.75	2.92±0.55	4.78±0.55	0.0001
Psychological discomfort	3.22±0.92	2.46±0.67	4.27±0.81	0.0001
Physical disability	2.95±0.85	2.43±0.59	4.13±0.60	0.0001
Psychological disability	2.89±0.90	2.60±0.58	4.67±0.74	0.0001
Social disability	2.41±0.53	2.11±0.32	3.34±0.65	0.0001
Handicap	2.92±0.60	3.44±0.50	4.65±0.79	0.0001

Table 2: Percentage reasons for social isolation among the subjects in all the groups

Reasons for Social Isolation				
Reason	**Preoperative**	**POD 1(%)**	**POD 3(%)**	**POD7 (%)**
Pain, Swelling, Physical appearance, Badmood and Malaise	14.3	38.1	25.4	15.9
Pain and Malaise	15.3	19.6	6.9	3.2
Pain and Badmood	2.6	3.2	1.6	0.5
Pain and Swelling	0.0	3.2	1.6	0.5
Pain, Physical appearance and Badmood	1.1	3.2	1.6	0.5
Pain, Badmood and Malaise	15.3	15.3	5.3	3.7
Badmood	0.0	7.4	4.3	1.1
Badmood and Malaise	0.5	22.2	13.2	7.4
Physical appearance, Badmood and Malaise	0.0	11.1	3.7	1.6
Swelling, Physical appearance and malaise	0.0	22.2	13.4	7.4
Swelling, Badmood and Malaise	0.0	4.8	2.6	0.5
Malaise	0.5	40.7	18.5	5.8
Pain, Swelling, Physical appearance and Malaise	0.0	54.0	27.5	9.0
Pain, Swelling, Physical appearance, Badmood	2.6	23.3	9.5	5.8
Pain, Physical appearance, Badmood and Malaise	7.9	5.8	2.1	0.5

DISCUSSION

Results from this study showed that the surgical removal of impacted mandibular third molar exerted a negative influence on patients' QoL across various domains with Group 3 having the worst score. This became statistically significant on POD 3 and POD 7 in all the domains. Groups 1 and 2 who had dexamethasone showed better QoL in all the domains with little impact on their reasons for social isolations. This is due to the anti-inflammatory effect of dexamethasone. This finding is in tandem with previous studies on the use of dexamethasone following mandibular third molar surgeries[9, 10]. However, there was a better outcome in Group 2 (topical dexamethasone) as compared with Group 1(oral dexamethasone). The local effect exerted immediately at the surgical site may be the reason for this observation. Ibikunle et al9 , have documented similar findings between oral and topical use of prednisolone.

Amazingly, there was a minimal difference on POD 3 among the groups. The usual postoperative sequelae following third molar surgery start 24 hours after surgery and peak at 72 hours after surgery, thereafter continuing to subside. This could probably explain this minimal difference on POD 3 among the groups.

The five factors listed as the reasons for social isolation in this study include; pain, swelling, physical appearance, Badmood and malaise. The percentage of subjects that reported these five factors to be the reasons for their social isolation were seen as 38.1% on POD 1, this value reduced to 25.4% on POD 3 and approximating its preoperative value on POD 7 as 15.9%. The preoperative value for these subjects was 14.3%. The subjects that reported four of the factors as reasons for their isolation was 54.0% on POD 1, 27.5% on POD 3 and 9.0% on POD 7. The single most reported reason for social isolation by the subjects was found to be malaise with percentage value of 40.7% on POD 1, 18.5% on POD 3 and 5.8% on POD 7. Those that reported pain and malaise alone was 19.6% on POD 1,6.9% on POD 3 and 3.2% on POD 7, while those that reported three of the factors (pain, badmood and malaise) as the reason for social isolation were seen as 15.3% on POD 1, 5.3% on POD 3 and 3.7% on POD 7. All these values reduced gradually from POD1 through POD 3 to POD 7 in all the postoperative days. The reduction in severity of impairment of social activities in the dexamethasone groups may be due to the anti-inflammatory effects dexamethasone. In this study, physical appearance was most frequently reported in combination with other factors. This is in agreement with study by Savin and Ogden-l1 that reported that one third of subjects had a major problem with socialization even after one week and this they related to an altered facial appearance. However, by POD 7, most of the reported reasons are minimally present or have either resolved completely. This observation could be due to the anti-inflammatory effect of dexamethasone used in this study.

CONCLUSION

Surgical removal of impacted mandibular third molars negatively affect postoperative quality of life, especially within the first three days. Dexamethasone significantly reduced pain, swelling, social isolation, and overall morbidity, with topical administration showing slightly better outcomes than oral use. Most symptoms improved markedly by postoperative day seven.

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