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10 April 2017

Online at <https://mpra.ub.uni-muenchen.de/79401/>

MPRA Paper No. 79401, posted 27 May 2017 04:51 UTC

Patients Compliance and Follow-Up Rate after Tooth Extraction

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Abstract : Abiding to post-operative instructions properly may help rapid recovery from surgical procedure. The study aims to check the follow-up rate and compliance of patients who sternly follow the post-operative instructions after non-surgical permanent tooth extraction through health status of the socket. **Study Design:** This cross-sectional study involved 100 consenting patients was performed at dental OPDs of DOW University of Health Sciences Karachi. One week after procedure information about health status of socket was obtained through questionnaire and clinical examination. Data (age, gender, socket status) analyzed using Pearson's chi square test with P -value ≤ 0.05 was considered significant. Out of 100 patients, 66 appear for follow-up where 34 remain absent. 66 patients who completed the study include 31 male and 34 female, with the mean age of 43.06 ± 16.19 years from which 18 cases report poor socket status and 48 cases report good socket hygiene. No significant difference between age, gender, and socket status was reported ($P > 0.05$). This study showed no statistical association of age and gender with the health status of socket. Additionally, it highlights the need to properly educate patients on the effect of compliance and the various complications and factors affecting, after tooth extraction due to non-compliance.

Keywords - Cross-sectional study, Follow-up procedure, Patients compliance, Postoperative instructions, Tooth extraction

I. INTRODUCTION

The understanding and the following execution of postoperative guidelines are factors that affect the recovery from any surgical procedure [1]. According to Bunzel and Lederach-Hofmann, compliance is the generally accepted term for patient co-operation with clinical prescriptions, which is vital for therapeutic success [2]. Sufficient patient education provided after any surgical procedures has been verified to improve patient satisfaction and decrease postoperative morbidity [3, 4]. Such education includes forecast of postoperative events, medication instructions and advise on home care of surgical wounds [5].

1.2 Aim

The aim of this study is "to investigate the follow-up rate and compliance of patients who sternly follow the post-operative instructions after non-surgical permanent tooth extraction through health status of the socket".

1.3 Research Objectives

Following are the objectives of the research:

- To assess possible strengthening of the primary and secondary health units in country
- To critically analyze the factors leading to non-compliance of the patients in local setup
- To examine necessary re-medical steps required in the light of factors came out as non-compliance.
- To recommend necessary re-medical steps required in the light of factors came out as non-compliance

II. LITERATURE REVIEW

Postoperatively, it is very important to control the pain and surgical site should be well-managed to improve the treatment outcomes [6]. The postoperative period is influenced by the understanding of the patient and the successive achievement of the instructions presented by the professional in order to minimize morbidity, complications, and improving the quality of life of the patient [7]. Follow-up is essential to support the patient in recovery. According to Monaco, Staffolani, Gatto and Checchi, age and gender along with smoking and alcohol consumption may cause variations in postoperative complications [8].

Efficient communication between doctor and patient increases the level of understanding and therefore delivering the health care services [9, 10]. In order to achieve therapeutic achievements, patients must obey and be cooperative with the clinical prescriptions [11]. Interestingly, there is a largely possibility that stress may vary in terms of gender [12]. Specifically, the occupational stress may cause health deterioration [13, 14]. Nevertheless, this study is not specifically looking into gender perspective but the general perspective.

Thus, the study aimed to evaluate the patient follow-up rate after tooth extraction, and secondly to check the compliance to possible strengthening of the primary and secondary health units and to find out the patients who sternly follow the postoperative instructions given written and verbally after extraction, through health status of socket. The hypothesis is that patients with higher level of compliance least likely to experience postoperative complications.

III. METHODOLOGY

A cross-sectional study involving patients attending the dental OPDs of DOW University of Health Sciences Karachi within two months time (February 2015 – March 2015). Cross-sectional design is effective in studying the respondents only once in a given interval [15, 16]. Majority of the patients belongs to low and middle socio-economic strata of the society. All the patients included in study were healthy (ASA I) or had mild systemic disease without functional limitations (ASA II). In addition to that, total of 100 patients were selected for the study that underwent non-surgical extractions of permanent teeth. Procedure was carried out under local anesthesia (2% lidocaine). Patients excluded from the study were those who treated under general anesthesia, children under six years of age not started with permanent dentition were non-compliant and those who received treatment from some other place and were referred to this hospital. The study was thoroughly explained to the patients and they were assured of keeping all the records confidential. Nothing was paid to the patients nor anything paid by the patient for the support of study. Formal verbal and written instructions were given to the patients after treatment. Instructions were translated in National language (Urdu) too, for the sake of understanding. They were requested about the compliance of the instructions.

"Table 1"

Take rest. Don't chew from extraction site Don't spit for minimum of 24 hours. Quit smoking for at least 48 hours Don't suck (avoid using straw). Mouth wash and saline rinse.

The above table reflects the initial guidelines offered to the patients [17]. Every patient was called after 1 week (5 to 7 days) to check follow-up rate and compliance to instructions given. A text message remembrance was given to every patient one day before postoperative appointment.

Information was collected postoperatively through questionnaire and clinical examination from all study patients to assess their compliance and follow-up rate

Socket status was assess using visual assessment scale; containing

Satisfactory:-

- Patient follow the instructions given
- Socket healing was satisfactory

Unsatisfactory:-

- Patient did not follow the instructions given
- Started eating from extraction side, did not quit smoking
- Socket contain debris

Dry socket:-

- Develops 3 to 5 days after extraction with throbbing steady radiating pain
- Loss of blood clot with foul smell and unpleasant taste
- Jaw bone visible in socket as white area

Infection:-

- Occurs soon after extraction
- Running fever is a reliable sign
- Accompanied with swelling and redness

The patients' age, gender and socket status was analyzed statistically through SPSS version 16 with Pearson's chi-square test with P value of less than and equals to 0.05 was considered significant.

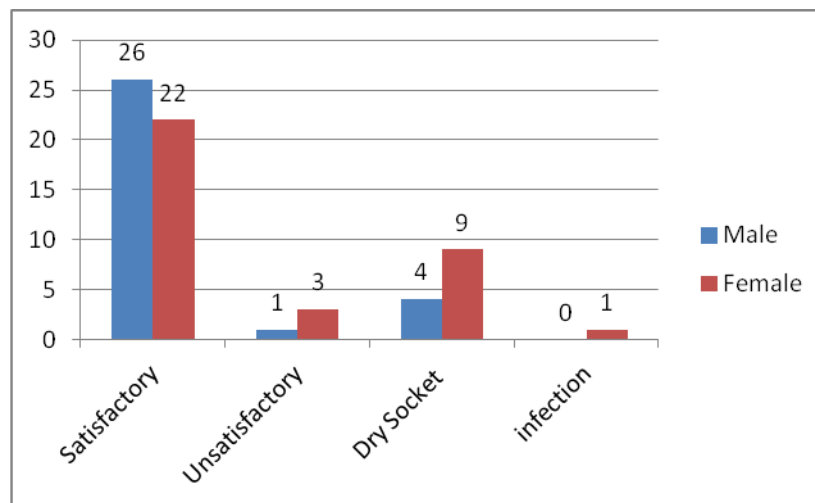
IV. RESULTS

In this section, descriptive statistics are presented first, specifically reflecting the demographic variables. The results of the study are as following.

"Table 2": Descriptive Statistics

	N (%)
Age (Mean, SD)	(43.06, 16.1)
Gender	
Male	46 (46%)
Female	54 (54%)
Follow-up	
Yes	66 (66%)
No	34 (34%)

Out of 100 patients studied, there were 46 (46%) males and 56 (56%) females with the average age 43.06 years (SD ±16.19 years.) Total of 66% patients appear for follow-up, however 34% kept missing as were eliminated because they did not attend the follow-up visit. Results therefore based on 66 patients.



"Fig 1: Follow-up pattern in gender perspective"

A total of 31 males and 35 females appeared for follow-up out of which dry socket was reported in 13(19.7%) case; 4(12.9%) males and 9 (25.7%) females. Socket status was satisfactory in 48 (72.7%) cases; 26(83.9%) males and 22(62.9%) females respectively. Whereas status reported unsatisfactory in 4(6.1%) cases; 1(3.2%) males and 3(8.6%) females and infection in 1(1.5%) cases; 0(0%) males and 1(1.5%) females. Only 1(2.9%) patient report infection that was female. The P-value (p=0.258) shows that there is no statistically significant association between gender and socket status.

"Table 3: Association between Gender and Socket Status"

Characteristics	Socket Status				Total	P-value
	Satisfactory	Unsatisfactory	Dry Socket	Infection		
Gender						
Male	26 (83.9%)	1 (3.2%)	4 (12.9%)	0 (0%)	31	<0.001**
Female	22 (62.9%)	3 (8.6%)	9 (25.7%)	1 (2.9%)	35	
Age Groups						
<=40	20 (40.8%)	2 (4.1%)	6 (12.2%)	1 (2%)	29	<0.001**
>40	28 (54.9%)	2 (3.9%)	7 (13.7%)	0 (0%)	37	

To check the association between age and socket status, patients appear for follow-up were distributed in two different age groups (i.e.: ≤40 and >40). Dry socket was reported in 6 (12.2%), satisfactory status in 20 (40.8%), unsatisfactory in 2(4.1%) and infection in 1(2%) cases in age group lesser than and equals to 40.

Whereas, in age group above 40 dry socket was reported in 7(13.7%), satisfactory status in 28(54.9%), unsatisfactory in 2(3.9%) and infection in 0(0%) cases respectively. The P-value (p=0.489) shows that there is no statistically significant association between age and socket status.

V. FINDINGS AND DISCUSSIONS

One of the main problems in health care is poor compliance or non-compliance which causes wastage of funds and resources. In the current study, the number of patients was reduced as many of the consenting patients did not appear for 1-week post extraction follow-up. A total of 66% patients appear for follow-up, out of 100. Decreased ratio of females to appear for follow-up shows their negligence to oral hygiene, which in turn supports the idea of relatively high incidence of dry socket and lesions in females, mention in other studies [18, 19, 20, 21]. In addition to that, dry socket appears with severe pain, bad breath and unpleasant taste after three to five days of extraction with the jaw bone visible in the socket.

There exists conflicting reports regarding the effect of gender on dry socket. Amaratunga and Senaratne in their study showed the incidence of dry socket in females was reported 2.4 times more of males [14- 22]. In another study, the ratio of females to males was 5 to 1 [23]. However, some other authors state gender not an effective factor in incidence of dry socket [24, 25, 26, 27]. There appear no significant association between gender and the incidence of dry socket in the current study as in accordance with the later reports. In addition to that, dry socket is a self limiting complication and the pain management should be the main aim, however prevention is more effective. Control of preoperative infection, compliance of patients on good oral hygiene, avoidance of traumatic extraction and avoidance of surgery in women who are non-menopausal and are on days between 1st to 22nd of their menstrual cycle, may help in reducing the chance of developing dry socket [28]. Oral contraceptive takers and smokers are at high risk of developing dry socket after non-surgical extraction [29]. Irrigation with normal saline, placing Alvogyl iodoform, analgesics are standard treatment protocol [30].

There were more patients greater than 40 years of age (13.7%), presented with dry socket. The peak age in the incidence has been reported 20 to 40 years old in some studies [31]. The findings of current study reports no significant differences in the incidence of dry socket and infection in age groups. However, the third and fourth decade of life with 21 to 35 years as peak age groups, had the highest incidence, which is in accordance with the findings of previous reports [32, 33]. Although the reason is scientifically unclear, infrequent periodontal diseases and the presence of compact alveolar bone leads to higher level of trauma and makes extraction difficult and therefore the higher incidence of dry socket [34, 35]. Moreover, poor blood supply to jaw, radiation treatment, smoking and a tooth that had infection before pulling out may increase the risks of infection and causes swelling in the gums for which antibiotic treatment is necessary. The current study reports no influence of gender and age groups on the incidence of infection. Furthermore, patient compliance is most importantly dependable on the literacy rate of the patients. Non-literate patients turn-down to ask for help in the understanding of the written medical instructions [36]. Parikh et al., said that low literacy being a source of humiliation and complexity in reading the provided directions and obscure the mission of health care providers, which should be identified to ensure compliance [37]. Sometimes even literate patients are unable to read instruction given in English language for which national language should be considered and verbal instructions along with the written ones are necessary. Efficient communication between doctor and patient increases the level of understanding and therefore delivering the health care services [38, 39]. Some other times patients fail to remember the instructions given verbally for which written instructions are necessary to follow on. Both types of post-operative instructions, written and verbal are important at their ends. Adebayo mentions in his study that verbal instruction along with written in back-up delivered in stress-free unhurried way may improve the level of compliance [40].

VI. CONCLUSION

The results of the current study revealed no significant association of age and gender with the health status of socket. Relatively higher percentage of female patients did not appear for follow-up. Female predilection for poor socket hygiene after tooth extraction was also observed in this study. This study highlights the need to properly educate patients; females in particular, on the effect of compliance and the various complications and factors affecting, after tooth extraction due to non-compliance. Decreased ratio of females to appear for follow-up shows their negligence to oral hygiene, which in turn supports the idea of relatively high incidence of dry socket and lesions in female. Results of this study clearly show higher female ratio for poor socket hygiene, dry socket and infection. In relation with the results of the other studies as mentioned above which shows the effect of gender on dry socket, this study shows no relation between gender and dry socket. However, this study clearly shows female predilection for poor socket hygiene after tooth extraction. There were more patients greater than 40 years of age presented with dry socket. The peak age in the incidence has been reported 20 to 40 years old in some studies. The findings of current study reports no significant differences in the incidence of dry socket and infection in age groups. However, the third and fourth decade of life had the highest incidence, which is in accordance with the findings of previous reports.

Secondly this study, in comparison with the other studies, defines to possible strengthening of the

primary and secondary health units in country to check the patients' compliance and to properly educate patients in order to reduce the risk factors increasing the chance of poor hygiene and also patient education provided after surgery proved to improve patient satisfaction and decrease postoperative morbidity.

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