

# ANALYSIS OF THE COMMONLY PRESCRIBED ANALGESICS POST PERIODONTAL FLAP SURGERY - AN INSTITUTIONAL BASED RETROSPECTIVE STUDY

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## Abstract

*Periodontal flap is a section of the gingiva and/or mucosa surgically separated from the underlying tissues to provide visibility and access to the bone and root surface. It is indicated in case of irregular bony contours, deep craters, deep pockets, furcation involvement, intrabony pockets, persistent inflammation. One of the main complications of flap surgery is pain. All dental procedures should reduce pain. Analgesics are prescribed to reduce pain and help ease the patient. These are a class of medication designed specifically to relieve pain. Some of which includes nonsteroidal anti-inflammatory drugs and Opioids. This study was performed with an aim to analyse the most preferred prescription of analgesics by dentists after performing a periodontal flap surgery. The present study was a retrospective study done in a university setting at the Department of Periodontology in a private dental college. The study involved all the patients who had undergone periodontal flap surgery in a given time frame. The time period was from June 2019 to April 2020. A total of 375 patients were included in the study. Parameters such as Age, Gender, Type of flap surgeries and Analgesics prescribed were taken into consideration. The data was sorted and imported into SPSS software for analysis. 60% of the patients in the study were male, 40% were females. 62.9% of the patients underwent localized flap surgery and 37.1% underwent full mouth flap surgery. The various analgesics that were prescribed to the patients included Zerodol SP (40%), Zerodol P (36.8%), Zerodol (10.1%), Imol (5.3%), Dolo 650 (1%) and Combiflam (7.5%). Most frequently prescribed being Zerodol SP and least preferred being Dolo 650. Association between the type of flap surgery and the analgesics prescribed were analysed. It was found that Zerodol SP was prescribed more frequently in both localized and full mouth periodontal flap surgery cases (p value > 0.05 - statistically not significant). Thus, the most commonly prescribed analgesic following periodontal flap surgery was Zerodol SP [Aceclofenac 100mg+ Serratiopeptidase 15mg + Paracetamol 325mg].*

**Keywords:** Analgesics; Periodontitis; Periodontal Flap Surgery; Pain

## I. Introduction

Periodontitis is a chronic inflammatory disease, which is induced by gram negative organisms that are present in the periodontium.[1] [2][3] It is a host mediated disease. [4] Periodontitis also has the tendency to link to other diseases such as diabetes, cardiovascular and pulmonary disorders.[5] A periodontal flap is a section of the gingiva/mucosa that is surgically separated from the underlying tissues to provide visibility and access to the bone and root surface[6][7]. Flap surgery is a preferred choice to treat deep periodontal pockets, intrabony defects and furcation defects in molars[6,8]. Chronic periodontitis could lead to rapidly progressing gingival

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recession, loss of alveolar bone, a decrease in the vestibular depth, tooth mobility and ultimately tooth loss. Treatment options for these cases to restore and maintain both function and esthetics would be a periodontal flap surgery[9]. Periodontal therapy would include both surgical and non surgical management of the periodontium. [10]. The quantitative and qualitative changes in the periodontium effects the choice of treatment.[11]

Periodontal flaps can be of various types and are classified on the basis of the following criteria[6]: bone exposure after flap reflection (full thickness, partial thickness), placement of the flap after the surgery (non-displaced flap and displaced flap), and management of interdental papilla (conventional. Papilla preservation flap). Selection of the flap would differ for each case. Periodontal surgery is performed on patients with periodontitis to prevent anatomical, developmental, traumatic or plaque induced defects of the gingiva, alveolar mucosa and bone[12]. The main goal of the flap surgery is to provide accessibility of instruments to the root surface, elimination of inflammation, plaque control, regeneration of periodontal apparatus, esthetic improvement, pocket elimination, regeneration of lost supporting tissues. They are contraindicated in case of less patient cooperation, cardiovascular diseases, organ transplantation, smoking or any adverse habits, teeth with hopeless prognosis.

Selection of the cases that could undergo this treatment would require to meet certain criteria such as esthetic demand, plaque and calculus free zones. It is important to detect the disease and treat it at the earliest to ensure good prognosis.[13] The main objective is to obtain a healthy, functional and esthetic periodontium[14], eliminate pathological changes[15] in the pocket walls and create a stable easily maintainable state[16,17][18][19]. Complication is a disorder arising as a consequence of another disease or treatment. Complications after periodontal surgery mostly include postoperative pain, bleeding, swelling, root hypersensitivity, delayed healing, bruising, nerve damage[20] They can alter the outcome of periodontal therapy[16,21]. According to studies, it states that postoperative complications occur in about 5.5% of the cases. The factors that may affect the success of a periodontal flap surgery include: severity of the disease, cases selection, prognosis, patients oral hygiene, maintenance of the site, presence of adverse habits. It is important to make sure the patient is taught proper hygiene maintenance post flap surgery. The placement of a periodontal dressing may also aid in normal healing as it would protect the site.

Post-operative pain is one of the more common complications that occur in the line of treatment. It is practically inevitable in case of any invasive treatment. It is said that about 86% of patients experience acute pain after surgery. It should diminish throughout the healing phase. For relieving pain, initially, analgesics like NSAIDs such as Diclofenac, Ibuprofen, paracetamol can be prescribed to the patient. Pain control can aid in proper healing as it would reduce the patient's discomfort. Essential pain management is also one of the priorities of dental practice[21]. The aim of this study was to analyse the most preferred prescription of analgesics by dentists after performing a periodontal flap surgery.

## **II. Materials And Methods**

### **Study design :**

The present study was a retrospective study done in a university setting at the Department of Periodontology in a private dental college. The study involved all the patients who had undergone periodontal flap surgery in a given time frame. The time period was from June 2019 to April 2020. A total of 375 patients were included in the study. All patients who had undergone a periodontal flap surgery were included for this study. Male and female patients of 16 to 70 years of age groups were considered. The exclusion criteria would be all patients with a history of nonsurgical periodontal treatment alone, repetitive entries and patients with incomplete records were removed from the study.

### **Ethicals:**

Before scheduling of the retrospective study, the ethical clearance was received from the institutional ethical committee (ethical approval number- SDC/ SIHEC/ 2020/ DIASDATA/ 0619-0320).

### Data collection:

All available data was collected and sorted. Data regarding the patient's age, gender, type of flap surgery and analgesics prescribed were considered for this study. Based on the type of flap surgery, the patients were categorised into those who underwent localised and full mouth periodontal flap surgery. The data was manually retrieved and tabulated in Excel sheets.

### Statistical analysis

The tabulated data was analysed using SPS software (IBM SPSS statistics 26.0). The type of analysis was descriptive analysis (percentage, mean and standard deviation) and inferential test (Chi square test). The association between the type of flap surgery and analgesic prescribed was analysed. P value less than 0.05 was considered to be statistically significant. The results were expressed in the form of bar graphs.

## III. Results

The present clinical study was carried out to assess the most commonly prescribed analgesics, post periodontal flap surgery. All data was analysed using the statistical programme of science version. The statistical method used to evaluate the result was “Chi square test” to compare between: type of periodontitis and analgesics prescribed.

Gender, age, type of flap surgery and analgesics prescribed distribution in the study:

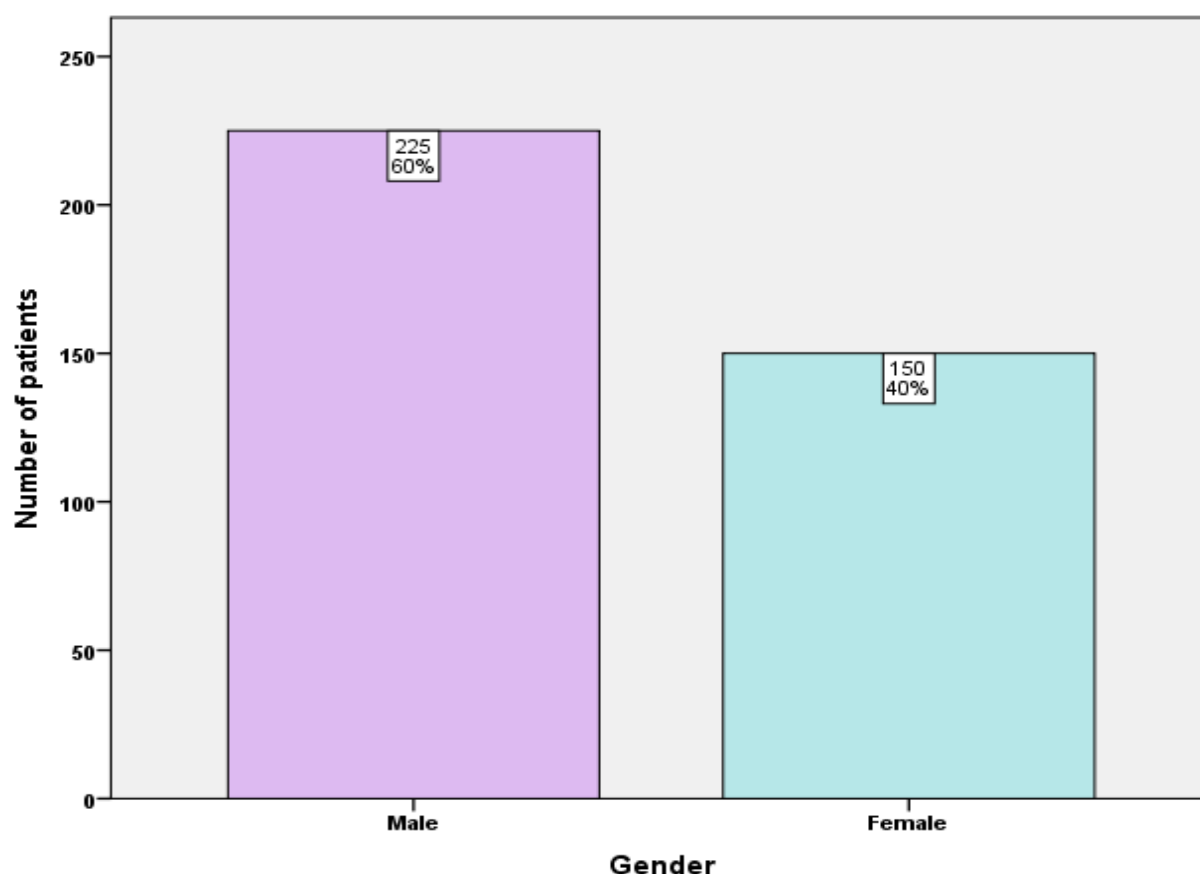


Figure 1: Bar chart shows the distribution of gender in the study. X-axis represents the genders (Male and Female); Y-axis represents the number of patients. More number of male patients (violet) were diagnosed with chronic periodontitis as compared to female patients (light blue).

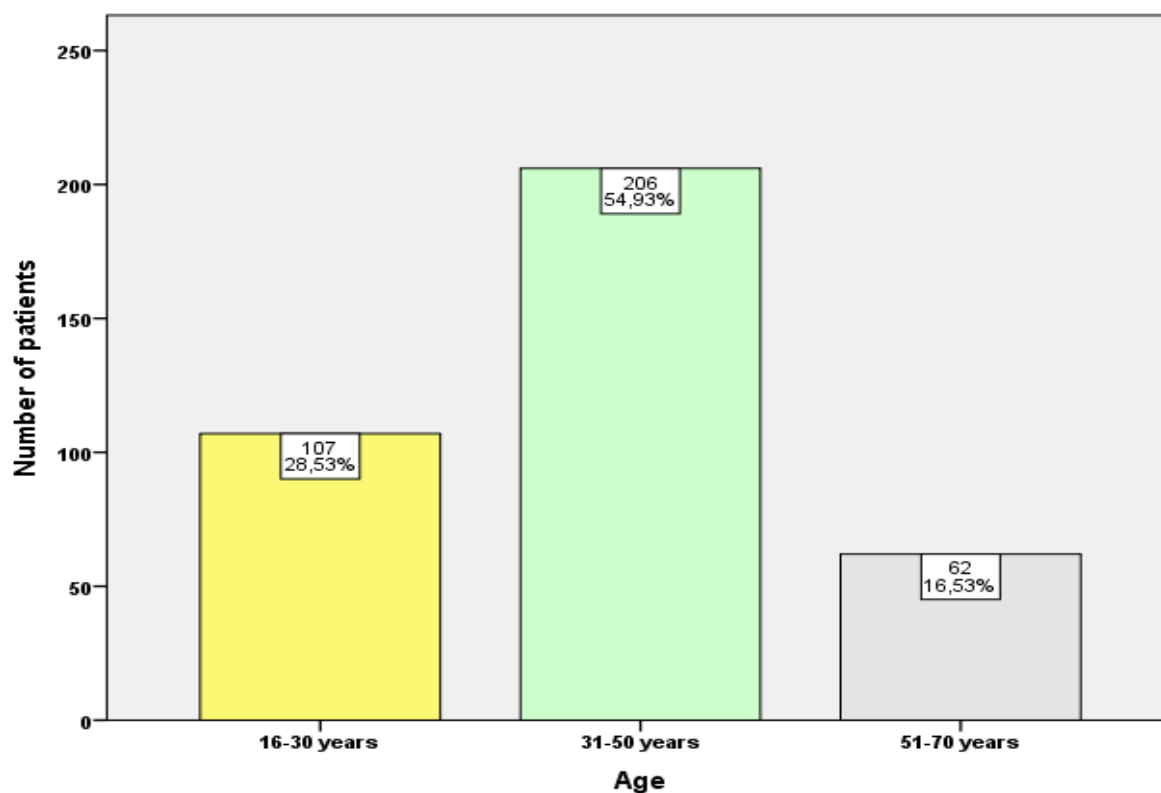


Figure 2: Bar chart shows the distribution of patients according to age groups in the study. X-axis represents the age groups; Y-axis represents the number of patients. Majority of the patients belonged between 31-50 years of age (Green ). The least number of patients belonged to the age group between 51-70- years (Grey)

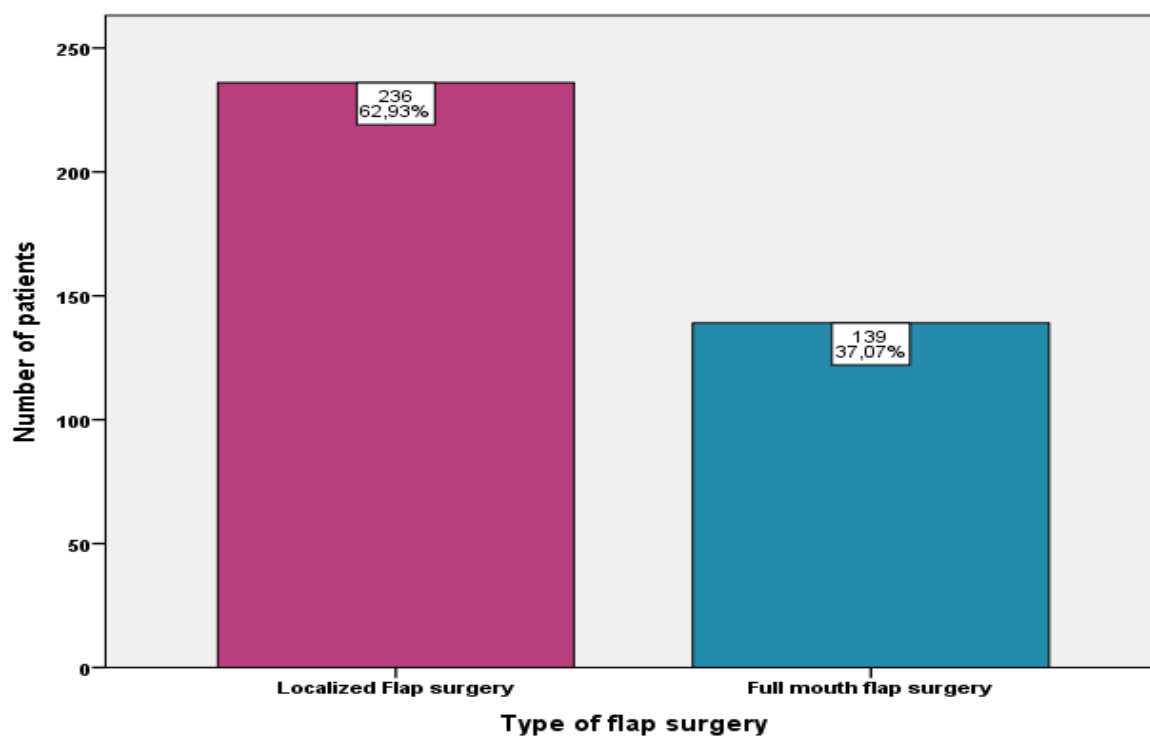


Figure 3: Bar chart shows the distribution of type of periodontal flap surgery in the study. X-axis represents the type of flap surgery; Y-axis represents the number of patients. There were more number of patients who required a localized flap surgery (Pink) as compared to full mouth flap surgery (Blue)

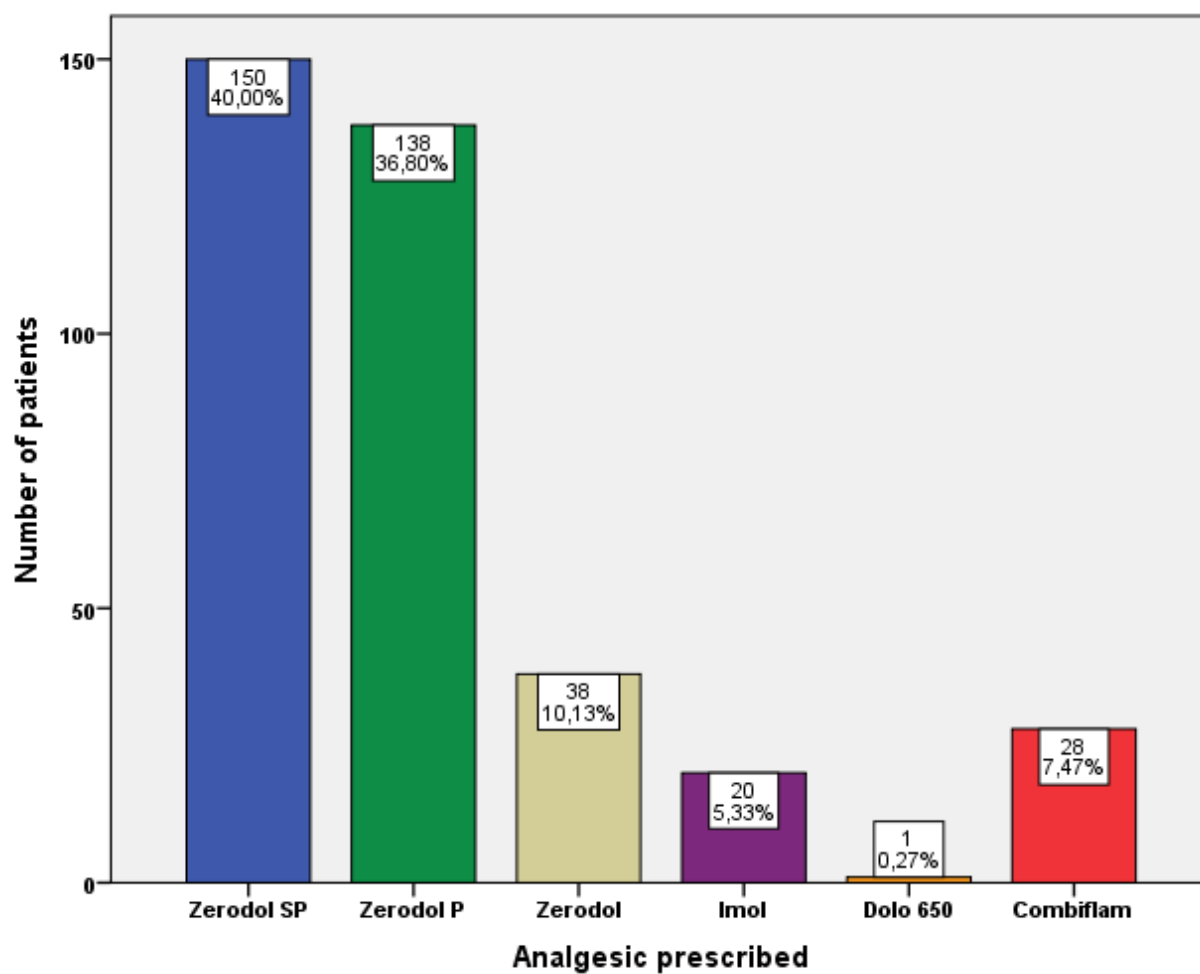


Figure 4: Bar chart shows the distribution of analgesics prescribed in the study. X-axis represents the analgesics; Y-axis represents the number of patients. It is seen that Zerodol SP (Dark blue) is the more frequently prescribed analgesic for periodontal flap surgery patients.

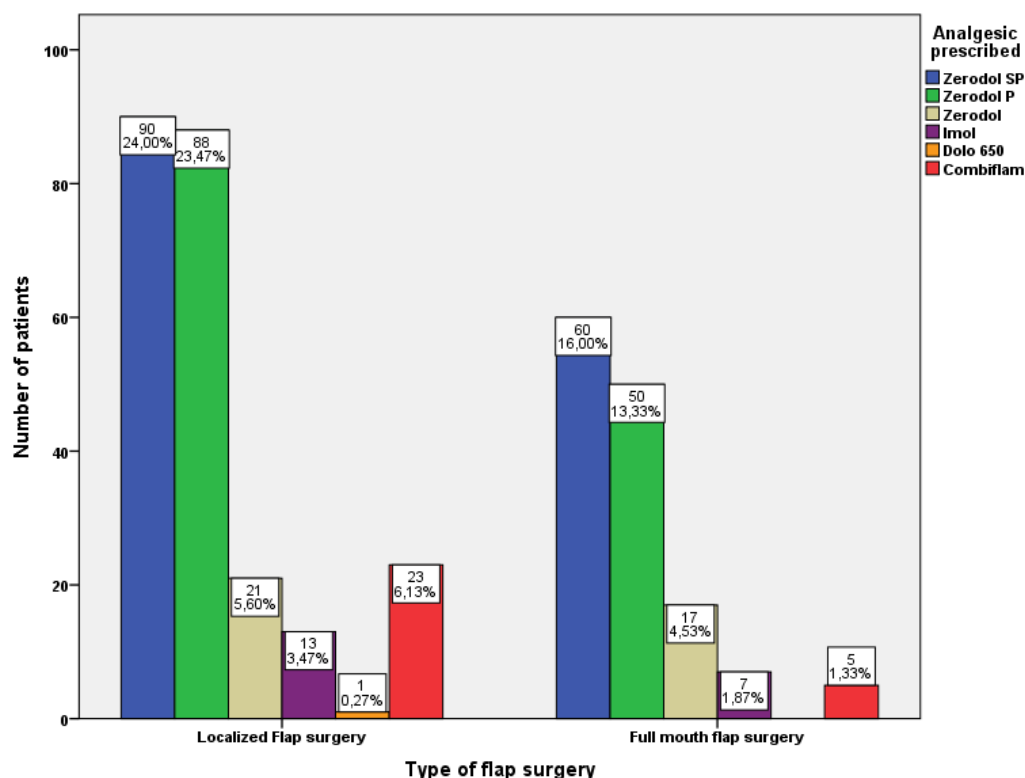


Figure 5: Bar chart shows the association between the type of flap surgery and analgesic prescribed. X-axis represents the type of flap surgery and Y-axis represents the number of patients. From the graph it can be deduced that Zerodol SP (Dark blue) was prescribed more frequently in both localized and full mouth periodontal flap surgery cases. (Chi square test,  $p$  value = 0.251,  $p > 0.05$ ) Association between the analgesic prescribed and the type of flap surgery was statistically not significant.

A total of 375 patients were included in the study. As per the study, 60% of the patients included were males and the remaining 40% were females. This is shown in Figure 1. The patients were grouped into three according to their age groups: 16-30 years (28.53%), 31-50 years (54.93%) and 51-70 years (16.53%). This is shown in Figure 2

Flap surgery was sorted into two groups: Localized flap surgery and full mouth flap surgery. 62.9% of the patients underwent localized flap surgery and the remaining 37.1% underwent full mouth flap surgery. These results are illustrated in Figure 3.

The various analgesics that were prescribed to the patients included: Zerodol SP [Aceclofenac 100mg+ Serratiopeptidase 15mg + Paracetamol 325mg], Zerodol P [Aceclofenac 100mg + Paracetamol 325mg], Zerodol [100mg Aceclofenac], Imol [Ibuprofen 400mg + paracetamol 325mg], Dolo 650 [Paracetamol (Acetaminophen) 650 mg] and Combiflam [Paracetamol 325mg +Ibuprofen400mg]. 40% of the patients were prescribed with Zerodol SP, 36.8% were prescribed Zerodol P. 10.1% were prescribed Zerodol. 5.3% were prescribed Imol. Combiflam was prescribed to 7.5% of the patients. These results are shown in Figure 4.

Association between the type of flap surgery and the analgesics prescribed were analysed and the results were shown in Figure 5. From the graph it can be deduced that Zerodol SP was prescribed more frequently in both localized and full mouth periodontal flap cases,  $p$  value = 0.251 ( $>0.05$ ), hence statistically not significant.

## IV. Discussion

With advanced periodontal conditions, the teeth are subjected to a lack of support. A study conducted by Mohammad F Helmi et al [22], stated that 55.5% of patients turn up with periodontal problems. One of the most

common treatments to treat periodontitis would be a periodontal flap surgery. The indications for this line of treatment would include deep pockets (more than 5mm), subgingival calculus, osseous deformities, tooth mobility (grade II), furcation involvement. With any invasive treatment, there is always the chance of postoperative complications and one of the most common complications would be pain. Acute pain can affect the hard and soft tissues of the mouth[23], thereby affecting the patient's comfort. Pain management after performing a flap surgery is said to be of paramount importance. Today clinicians have a variety of pharmacological and non pharmacological options for treating pain. Few analgesics that are prescribed include Nonsteroidal anti-inflammatory drugs such as acetaminophen (Paracetamol), aspirin (Acetylsalicylic acid), Ibuprofen, Aceclofenac, Diclofenac, COX 2 inhibitors. It is the dentist's job and skill to make the entire course of the treatment as painless as it can for the patients. This is where the prescription of various analgesics come into play.

Periodontitis is a disease with a male predilection. Males are more prone to the disease and its severity. According to the results, there are more males than females present in this study. 60% of the patients were males. This shows that periodontitis is more common among the male population. Antina Schulze et al [23,24] stated in her study that the males had a more severe periodontal status as compared to females. Males were diagnosed with periodontitis more commonly compared to female patients. Hans et al [25] stated that there is a higher prevalence of destructive periodontal diseases in men than in women due to reasons such as hormones, genetics, behavior and stress. Periodontitis is categorized into localized periodontitis and generalized periodontitis in this study. As per the results of the present study, it states that a higher number of patients (62.9%) were diagnosed with localized chronic periodontitis and underwent localized flap surgery. 37.1% were diagnosed with generalized chronic periodontitis and underwent full mouth flap surgery. The prevalence rate of localized periodontitis is higher than generalized. Most prevalence studies compare the incidence of chronic and aggressive periodontitis. Santha Kumari et al [26] conducted a study analyzing the prevalence rate of different types of periodontitis. It was stated that 90.35% of the patients were diagnosed with chronic periodontitis.

The various analgesics that were prescribed by dentists in the study included: Zerodol SP [Aceclofenac 100mg+ Serratiopeptidase 15mg + Paracetamol 325mg], Zerodol P [Aceclofenac 100mg + Paracetamol 325mg], Zerodol [100mg Aceclofenac], Imol [Ibuprofen 400mg + paracetamol 325mg], Dolo 650 [Paracetamol (Acetaminophen) 650 mg] and Combiflam [Paracetamol 325mg +Ibuprofen400mg]. The most commonly prescribed analgesics was seen to be Zerodol SP (40%). The least prescribed analgesic was Imol (5.3%). There are various similar studies that analyse the most preferred drug of choice by dentists for various treatments to reduce pain. Karishma Ravinthar et al [27] conducted a study to check the most prescribed analgesic post implant surgery. Paracetamol (78%) was seen to be prescribed the most. Another study by Rahul Datta et al [27,28] stated that the most prescribed analgesics was Paracetamol with a combination of Diclofenac. The prescription of an analgesic and its dosage would be determined by the invasiveness of the treatment. More invasive procedures would require a higher dose analgesic so as to reduce pain. According to the association between the type of flap surgery and analgesic prescription done in this study, Zerodol SP was prescribed more frequently in both localized and full mouth periodontal flap surgery cases. The least prescribed is Dolo 650. Zerodol SP being a combination drug, could have been given more often for pain management. A study by [29] stated that a higher dosage of analgesics are required for complete pain management. This study consisted of a small sample size of 375 patients and was only focused on a locality. It cannot be used to generalize to a wider population because of its limit. Future studies can involve the evaluation of the pain levels following administration of different analgesics using a pain assessment scale.

## V. Conclusion

Within the limits of this study, it can be stated that Zerodol SP, which is a combination of Aceclofenac 100mg, Serratiopeptidase 15mg and Paracetamol 325mg was the most commonly prescribed analgesic by dentists, post periodontal flap surgery. Next to Zerodol SP, Zerodol P was prescribed more frequently in both localized and full mouth periodontal flap surgery cases. A patient's experience with postoperative pain following periodontal flap surgery is difficult to predict and hence analgesics should be routinely used for pain prevention and management.

## Authors contributions

Reshma Harikrishnan: Data collection, Data analysis and interpretation, Drafting of the article

Dr. Balaji Ganesh S: Critical revision of the article, Final approval of the version to be published

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## Conflict of interest

No potential conflict of interest relevant to this article was reported

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