



Original Research

Most commonly prescribed analgesic among 6 to 12-year-olds after extraction in paediatric dentistry - A retrospective study

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ABSTRACT

Background: Using their expertise in analgesics, the dentist should recommend the best prescription at the right dosage to reduce pain without going overboard.

Aim: To determine the most commonly prescribed analgesics which are used post-extraction for 6 to 12-year-old children

Materials & Methods: A total of 4160 patient data was collected from OPD data from the Department of Pediatric Dentistry, Saveetha Dental College & Hospital of 6 to 12-year-old children who have gotten dental treatment and have received analgesic medication. The dentist should use his or her knowledge of analgesics to prescribe the most effective drug and appropriate dose to alleviate pain while avoiding overmedication. The treatment records of these patients were assessed and data was analyzed. Descriptive analysis and chi-square tests were performed.

Results: The majority of the patients (16.7%) were 9 years old. The most commonly prescribed analgesic was found to be paracetamol (56.6%). The most common combination drug prescribed to children was Paracetamol and Ibuprofen (19.5%). P value for the comparison between gender and age with different types of analgesics [0.0005 (<0.05)] was found to be statistically significant.

Conclusion: In both males and females, paracetamol was the most prescribed analgesic and most commonly prescribed analgesic, a combination drug; Paracetamol & Ibuprofen.

Keywords: Extraction, Analgesics, Pain, Children

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INTRODUCTION

In general, the word "pain" refers to unpleasant bodily sensations that results from the neurological system being activated. Pain can be inconvenient or incapacitating which could itch or feel like a stinging jab.¹ Analgesics are drugs that relieve pain without causing drowsiness or unconsciousness in the user. However, due to intraoperative analgesics and/or local anesthetics, some patients may experience delayed pain responses, and following the procedures, they may experience increased discomfort at home.² Discomfort is frequently caused by extensive tooth breakdown from caries and other external sources, such as trauma. Extractions will reduce discomfort and save the need for needless restorative procedures.³

Analgesic use may be undervalued in certain situations where post-operative discomfort is disregarded which may be because they lack the vocabulary and cognitive ability to adequately express how they are feeling. Chronic pain can lead to some children developing deceptive coping methods.⁴ Even in cases when pain is acknowledged, many parents undermedicate, perhaps because they have doubts about the effectiveness of analgesics and other prescription drugs.⁵ Non-opioid analgesics are a general category of analgesics. Nonsteroidal anti-inflammatory medicines (NSAIDs), acetaminophen, opioid analgesics (μ opioid agonists and agonist-antagonist opioids), and adjuvant analgesics are a broad class of medications with analgesic qualities but primary indications for ailments other than pain. Nonsteroidal anti-inflammatory medicines that are often utilized include ketorolac and paracetamol.

The IUPAC classifies paracetamol as N-(4-hydroxyphenyl) ethanamide N-(4-hydroxyphenyl) acetamide, which is a para-aminophenol derivative. When treating mild to moderate pain in pediatric patients, it is the most commonly utilized analgesic. Children with gastric ulcers, asthma, or severe anemia shouldn't take it. Heteroaryl acetic acid derivatives are ketorolac.⁶ It is a strong analgesic that is primarily injected intramuscularly to treat moderate to severe pain temporarily.^{7,8} Combining analgesics with various modes of action can cover a broad spectrum of pain, increasing the synergistic effects of individual medicines and decreasing the likelihood of certain side effects. A strong pharmacological justification exists for mixing two drugs with distinct.

Therefore, this study aims to identify the most often recommended analgesics for children between the ages of 6 and 12 who are having tooth extractions.

MATERIALS & METHODS:

A retrospective study among children who visited the Department of Pedodontics in a private dental college during the period of March 2019 to February 2024 was evaluated. A total of 4160 children retrospective data aged 6 to 12 years were cross-verified based on the different analgesics prescribed to children. All these patients have had their tooth/teeth extracted. The reviewed data was tabulated in SPSS software. The data included information on age, gender, and different analgesics prescribed. Descriptive analysis (frequency and percentages) was used for statistical analysis.

RESULTS

According to our research, patients between the ages of 6 and 12 have been prescribed a variety of medication combinations. 27.3% of all given medications were combo medications. In all, six combinations of medications were prescribed in our study: diclofenac and ketorolac, diclofenac and ketorolac, paracetamol and aceclofenac, paracetamol and ibuprofen, paracetamol and diclofenac, and paracetamol plus various types of medications. According to our research, children were prescribed a

combination of paracetamol and ibuprofen the most frequently (19.5%). Pediatric patients should not receive combination medication prescriptions from dental professionals unless essential and as dictated by the patient's medical condition

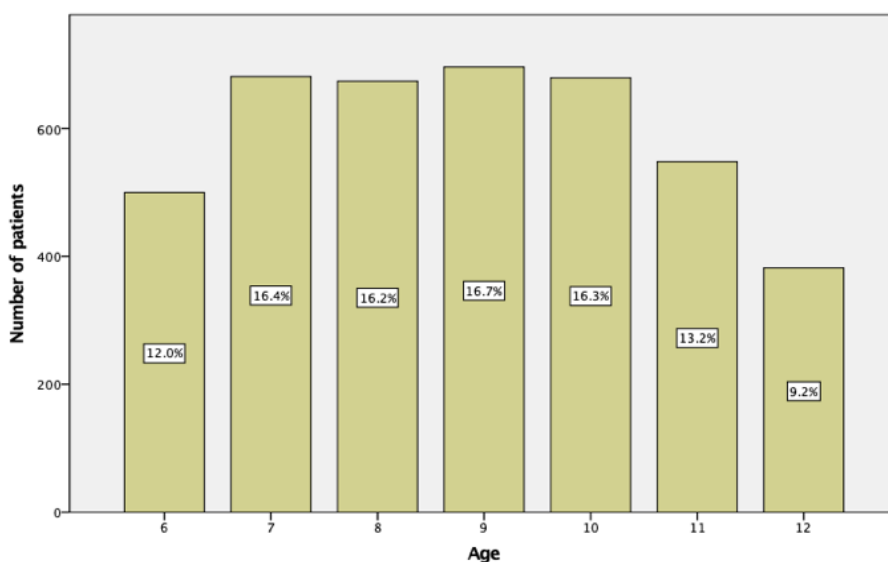


Figure 1: This bar graph depicts the age of the patients. The X-axis depicts the age of the participants and the y-axis depicts the number of patients being prescribed the particular medication. It was seen that out of the 4160 patients, 12% are the age of 6, 16.4% of the age 7, 16.2% of the age 8, 16.7% of the age 9, 16.3% of the age 10, 13.2% of the age 11, 9.2% of the age 12.

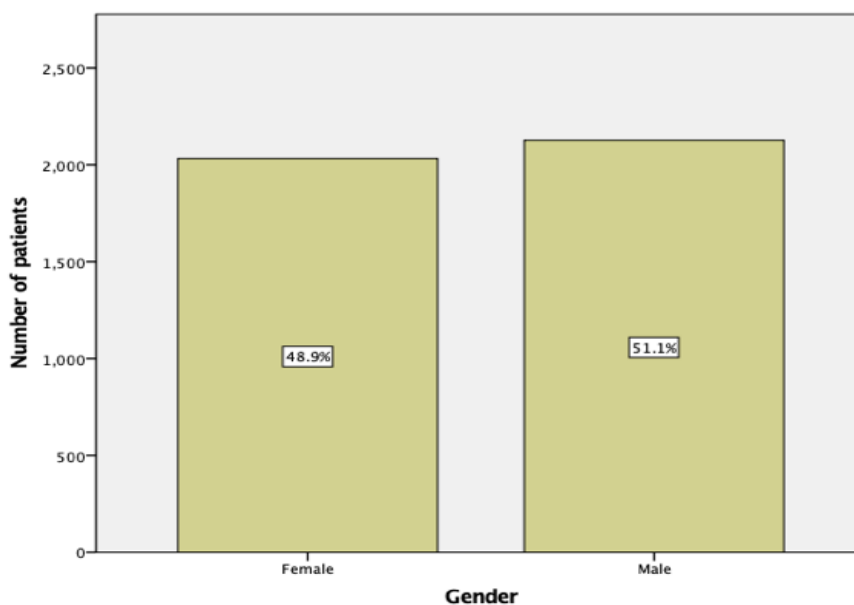


Figure 2: The bar graphs depict the gender of the patients. The X-axis depicts the gender of the patients and y-axis depicts the number of patients being prescribed the particular medication. It was seen that out of the 4160 patients, 48.9% were female and 51.1% were male

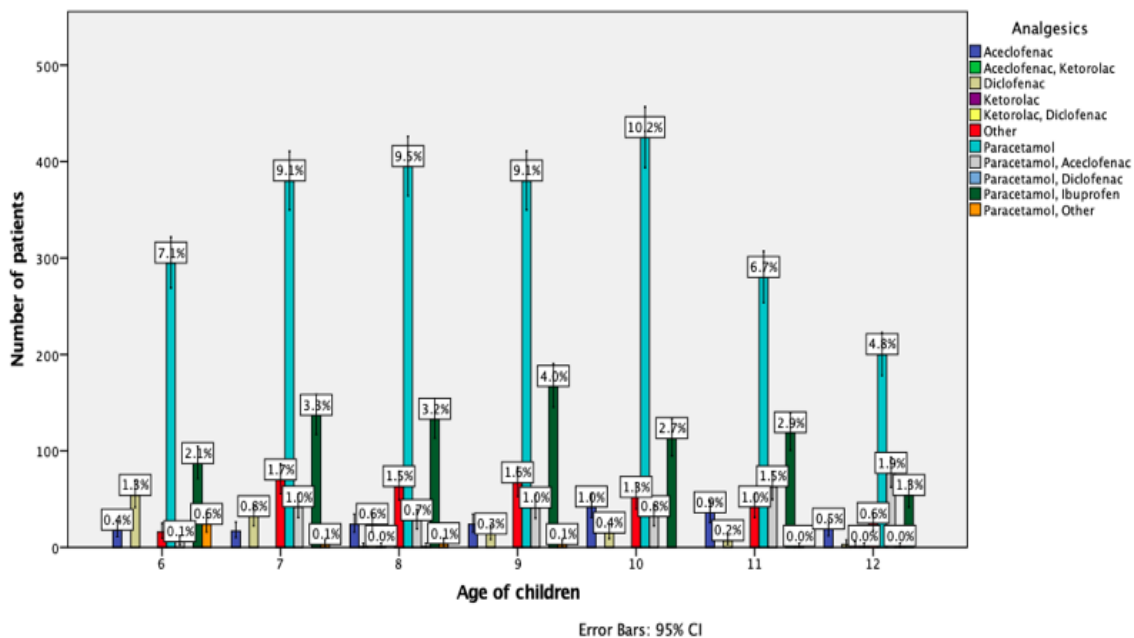


Figure 3: Bar chart shows the association between the different analgesics prescribed and the age of the participants. The x axis represents ages of patients from 6 to 12 years old and the y-axis shows the number of patients being prescribed the particular medicine. The dark blue represents aceclofenac, the green represents aceclofenac and ketorolac, the golden yellow represents diclofenac, the purple color represents ketorolac, the yellow color represents ketorolac and diclofenac, the red color represents others, the light blue color represents paracetamol, the grey color represents paracetamol and aceclofenac, the dark green represents ibuprofen and paracetamol, the orange color represents paracetamol and others. p-value = 0.0005 (<0.05) which is statistically significant proving that there was a significant association between age and the different analgesics prescribed. Paracetamol was found to be the most prescribed analgesic among all ages (56.5%). Following paracetamol the most commonly prescribed analgesic is a combination drug, Paracetamol & Ibuprofen, (19.6%)

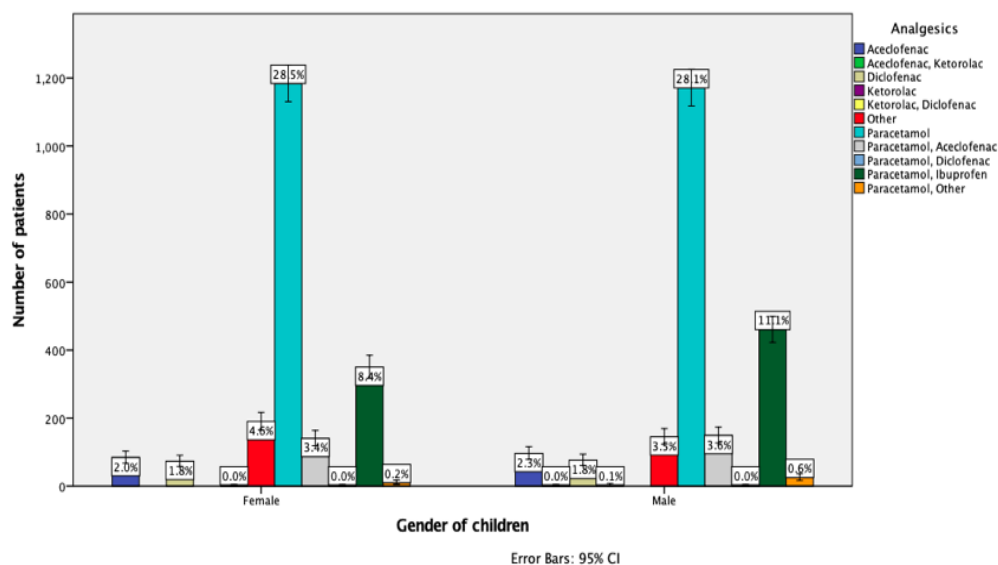


Figure 4: Bar chart shows the association between the different analgesics prescribed and gender of the participants. X axis represents the gender and Y axis shows the number of patients being prescribed the particular number of medicines. The dark blue represents aceclofenac, the green represents aceclofenac and ketorolac, the golden yellow represents diclofenac, the purple colour represents ketorolac, the yellow colour represents ketorolac and diclofenac, the red colour represents others, the light blue colour represents paracetamol, the grey colour represents paracetamol and aceclofenac, the dark green represents ibuprofen and paracetamol, the orange colour represents paracetamol and others. P value = 0.0005 (<0.05) which is statistically significant proving that there was a significant association between gender of children and the different analgesics prescribed. In both males and females it was found that paracetamol was the mostly prescribed analgesics with 28.1% and 28.5% respectively. Following paracetamol the most commonly prescribed analgesic is a combination drug, Paracetamol & Ibuprofen, in both males and females (11.1% and 8.4%)

DISCUSSION

Simple primary tooth extraction is regarded as a painful stimulation that may result in aggressive behavior in pediatric dentistry¹² Despite the numbness provided by local anesthesia, investigators identified some pain issues in children after acquiring innovative techniques like mandibular block anesthesia, regardless of age, gender, or form of extracted teeth.¹³ Thus, analgesics must be used for such kinds of dental services.¹⁴ Nonsteroidal anti-inflammatory drugs are one of the treatment options to be used as pain relief for surgical teeth extraction and cavities preparations. the postoperative pain intensity can be subsided and delayed as a result of the reduction in the number of pain triggers (prostaglandins) discharged into the site of the injuries.

In a study by Ashiwaju M et al., which involved young children between ages 3 to 15, it was discovered that tooth loss was most common in those between the ages of 7 and 10.¹⁶ Hughes et al. found that 146 children between the ages of 3 and 13 who had tooth extractions. In another investigation, Baygin et al. discovered that paracetamol and ibuprofen are equally safe and effective.¹⁷ In addition, Gazal et al.¹⁸ provided support for the oral delivery of ibuprofen and paracetamol for postoperative analgesia in pediatric patients undergoing general anesthesia. Diclofenac was found to be much more efficacious than paracetamol in another trial.¹⁹

According to Matthews et al., there are no changes between taking Diclofenac [50 mg] by itself and Diclofenac plus Paracetamol [500 mg].^{8,20} When compared to Ibuprofen or Paracetamol alone, the combination of Ibuprofen 600 mg and Paracetamol 1000 mg reduced pain intensity by 82% and provided 8 hours of postoperative relief, according to research done by Menhinick et al. on combination medications for pediatric patients.^{8,21}

In India, there are widely used commercially accessible combination medications, such as Ibuclin Jr.® and Ibugesic Plus®. Tablet forms are available for each of these medications whereas Ibugesic Plus® combines Ibuprofen 400 mg with Paracetamol 325 mg, Ibuclin Jr.® combines Ibuprofen 100 mg with Paracetamol 125 mg. These combination is also offered as an oral suspension that contains 162.5 mg of paracetamol and 100 mg of ibuprofen per 5 milliliters.^{8,22}

Figures 3 and 4 illustrate the statistically significant ($p>0.05$) relationship between the participant's age and gender and the various analgesics prescribed to help identify which analgesic is most frequently prescribed to kids between the ages of 6 and 12. It was determined that both connections were paracetamol accounted for 56.6% of the prescribed analgesics. Among all age groups, paracetamol was the most often utilized analgesic for treating post-operative pain following extractions. Paracetamol was also discovered to be the most often used analgesic in both males and females (28.1% and 28.5%, respectively).

CONCLUSION

Within the limitations of the current investigation, it can be deduced that the most often recommended medication for treating post-operative pain following tooth extraction in children between the ages of 6 and 12 is paracetamol.

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Nil

CONFLICTS OF INTEREST

There are no conflicts of interest

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