Original Research Paper

Volume-8 | Issue-4 | April-2018 | PRINT ISSN No 2249-555X

Pharmacology

ADEQUACY OF ANALGESIA DURING DENTAL EXTRACTION IN A TERTIARY CARE CENTER.

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ABSTRACT Tooth extraction is among the most common procedure in dentistry. There will always be some degree of pain during and after tooth extraction. Pain management is an important goal for all dentists. Analgesics are the most commonly used drugs for relief of pain. The aim of this study was to know the adequacy of analgesic drugs during dental extraction. Two hundred patients were selected for the study who advised dental extraction for the dental problems, out of which hundred patients who were taking analgesic drug before dental extraction and another hundred patients who were not taking analgesic drug before dental extraction. Information about patients detail and analgesic prescribed were noted in prepared proforma. Numeric Rating Scale was used for assessment of pain and analyzed with using "t" test. The results showed that dental caries was the most common reason for dental extraction. We found significant lower NRS scores of group on analgesic before dental extraction. Conclusion: Use of oral analgesic before dental extraction helpful in pain management during dental extraction.

KEYWORDS : Tooth extraction, pain management, analgesic drugs.

Introduction:

Pain is an unpleasant sensory and emotional experience associated with potential tissue damage or described in terms of such damage.[1] Pain has been consistently identified as the most common reason for seeking dental attention and an inevitable sequela of some dental treatment.[2]

Pain management is an integral part of dental practice. The appropriate selection and use of the analgesics will facilitate the delivery of this service with the optimal safety and efficacy, pain control is therefore an essential service and duty of dentists. Extraction of teeth is a common dental procedure, and after tooth extraction the patient may experience pain, and there is a varying degree of severity between patients.[3-4]

Dental pain can be acute or chronic with different characteristics. The response of patient to pain perception has also been shown to vary and depend on several factors like sex, age, previous pain experience etc.[5]

In dentistry analgesic medications are indicated for the relief of acute pain, postoperative pain, and chronic pain and for controlling adjunctive intra-operative pain.[6] Present study was designed with the aim of determining the adequacy of analgesic drugs in pain relief during dental extraction. For the assessment of pain during dental extraction we were use the Numeric Rating Scale (NRS). The NRS is a segmented numeric version of the Visual Analog Scale (VAS), respondent selects a whole number (0 -10 integers) the best reflects the intensity of their pain.[7]

MATERIALS AND METHODS:

It was a cross sectional prospective study. The present study involved the patients who were 18 years and above age needed dental extraction for their dental problems. Patients were randomly selected from Dental Outpatient department All India Institute of Medical Sciences Bhopal of any age in all working days during the study period. The patient selected was interviewed and the objectives of the study were discussed with them. Information were noted in prepared proforma, this proforma were included patient`s detail, analgesic prescribed with its dose, frequency, duration, clinical diagnosis and Numeric Rating Scale score to assess pain during dental extraction.

We had divided patients in two group, one group (100 patients) taking analgesic drug before dental extraction and another group (100 patients) who were not taking analgesic drug before dental extraction.

Data were collected over 3 month and analyzed by MS Excel 2007, and a comparison of mean NRS score was done by using the "t" test. A value of $p \leq 0.05$ was taken as significant.

Results:

A total of 200 patients (male 101, female 99) were analyzed over a 3 months. Mean Age of the patients included in the study were 47.95 years with age ranges between 18 - 80 years. The number of teeth extracted was different for the different age groups, and dental caries accounted for the majority (65 %) of extractions in all age groups. Periodontal diseases were found to be the second most common reason for extraction (33 %) [Table: 1].

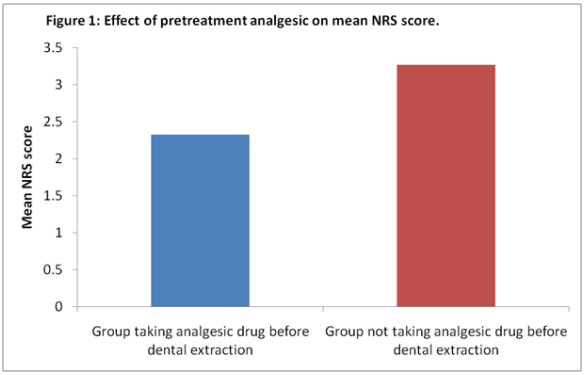
Table 1: Age, gender and reason for extraction:

		Age				Gender		Total
S.N.	Condition	18 – 25	26 – 39	40 – 59	≥ 60	Male	Female	
1	Pulpitis / Caries	20	36	47	27	69	61	130 (65 %)
2	Periodontal Diseases	3	10	12	41	31	35	66 (33 %)
3	Periapical abscess	1	0	0	0	1	0	1 (0.5 %)
4	Impacted tooth	1	2	0	0	0	3	3 (1.5 %)
Total		25 (12.5 %)	48 (24 %)	59 (29.5 %)	68 (34 %)	101 (50.5 %)	99 (49.5 %)	200 (100%)

Table 2 shows the analgesic prescribed before dental extraction. The most frequently prescribed analgesic was combination of Paracetamol & Aceclofenac (33 %). Diclofenac (10 %) was the most commonly used individual agents.

Table 2: Frequency of pretreatment Analgesic drugs:

S.N	Drugs	Frequency in percentage
1	Paracetamol + Aceclofenac	33 %
2	Paracetamol + Aceclofenac + Serratiopeptidase	28 %
3	Diclofenac	10 %
4	Ibuprofen + Paracetamol	6 %
5	Aceclofenac	6 %
6	Ibuprofen	5 %
7	Diclofenac + Paracetamol	4 %
8	Diclofenac + Serratiopeptidase	3 %
9	Ketorolac	2 %
10	Tramadol	1 %
11	Diclofenac + Paracetamol + Serratiopeptidase	1 %
12	Aceclofenac + Serratiopeptidase	1 %



After performing Student "t" test we found that the group on analgesic had significantly lower mean NRS scores (2.33) compared to the group who were not taking analgesic before dental extraction (3.27) [Figure 1]. Since the p - value (= 0.000437) is less than (= 0.05) at 5 % level of significance.

Discussion:

A significant number of individuals during dental treatment perceived pain.[8] The positive relationship between anxiety and dental treatment pain has been shown by several studies.[12-14] A study on causes and pattern of loss of permanent teeth among patients attending a dental teaching institution in south India conclude that caries and periodontal disease together accounted for majority of the extraction.[15] The present study also confirms the same results.

In many cases patients come to the office already in pain, pretreatment analgesia is a more clinically relevant term to use, providing analgesia to patients before treatment is started. This technique may decrease the establishment of central sensitization, a mechanism whereby spinal neurons increase their responsiveness to peripheral nociceptive input.[16]

A study on Preemptive analgesia in third molar impaction surgery conclude that preemptive analgesic agent is effective and safe method of postoperative pain control.[17] We also found that the group on analgesic had before extraction significantly lower mean NRS scores compared to the group without analgesic.

We found that most commonly prescribed analgesic in our study was paracetamol plus aceclofenac combination [Table 2] however, in some studies they found that diclofenac sodium alone was found to be the most commonly prescribed analgesic.[18-19] Another study on Drug utilization pattern of analgesics in various departments of a tertiary care teaching rural dental hospital found that diclofenac sodium plus paracetamol was the most commonly prescribed analgesic formulation.[20]

In the current study, it was found that no analgesic, dose, or combination will work for all patients. Selecting the most appropriate analgesic is an issue of efficacy, safety, and cost. Rather, the dentist has to periodically assess patient's pain and intervene as needed to adjust medications to balance analgesic efficacy against adverse effects.[21]

The present study has certain limitation too that sample size was taken from only one hospital in Bhopal which showed a study population with similar socioeconomic status.

Conclusion:

The evidence indicates that the use of oral analgesics before dental extraction probably decreases the pain during dental extraction. The choice of analgesic depends on the clinical condition of patient. The study of pain management in dentistry is important and should be investigated further.

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