

Comparative Assessment of Analgesic effect of different NSAID's in the Management of Low Back Pain

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Abstract: The aim of this study was to assess the comparative efficacy of different NSAIDs in patients diagnosed with low back pain. 253 patients of either sex in the age range of 19 to 60 years diagnosed of low back pain were included. Comparative study was done between five groups of drugs (Aceclofenac, Diclofenac, Aceclofenac+Paracetamol, Diclofenac+Paracetamol and Piroxicam). Severity of pain before and after treatment was recorded by using Visual Analogue Scale (VAS). Patients were reviewed per week. The decrease in score of pain was more pronounced with Piroxicam along with H₂-receptor antagonist and combination therapy.

Key words: NSAIDS, VAS, LBP, Pain scoring pattern.

Introduction

The present study was undertaken with the aim of comparing the efficacy of different NSAIDs in patients diagnosed with low back pain. Low Back Pain (LBP) is a 'human condition' with 60-80% of the world population experiencing pain at some time in their life¹. Back pain is second only to the common cold as the most frequent reason for visiting a physician and is the most common chronic pain syndrome in individual countries². It is mostly a self limited illness i.e. many attack of low back pain resolve quickly, but some patients go on to develop severe, long term disability³.

Low back pain is a common musculoskeletal symptom that may be either acute or chronic. It may be caused by a variety of diseases and disorders that affect the lumbar spine. Low back pain is often accompanied by sciatica, which is pain that involves

the sciatic nerve and is felt in the lower back, the buttocks, and the backs of the thighs.

Pain in the lower back area that can relate to problems with the lumbar spine, the discs between the vertebrae, the ligaments around the spine and discs, the spinal cord and nerves, muscles of the low back, internal organs of the pelvis and abdomen, or the skin covering the lumbar area. The highest prevalence is in the person's aged 45-65 years. The course of treatment for low back pain will usually be dictated by the clinical diagnosis of the cause of pain.

The lumbar spine assists body movement through force production, force transmission, and shock absorption. Athletes consistently recruit or transfer high levels of repetitive force through the spine, and MRI has documented a higher rate of disc degeneration in athletes versus controls, though it is

not clear that this translates to an increased incidence of pain⁴.

The most frustrating aspect in treatment of back pain is that there is no "magic bullet." Most individuals recover completely by simply avoiding strain to their spine. Patients often find help from ice, heat, and medications. If the basic steps do not alleviate back pain, the next step is to seek medical evaluation.

Non-Surgical treatment for low back pain is multiple and varied: e.g. Counseling and education, rest, medication, braces, passive modalities, spinal manipulation, injection, exercise and stretching, proper lifting technique. Surgical treatment for low back pain includes Spinal fusion and Disc replacement which are used when non-surgical treatment fails⁵.

Medication commonly used for the treatment of acute LBP includes acetaminophen and other non steroidal anti-inflammatory drugs. The drugs used for comparison include Aceclofenac. Diclofenac, Aceclofenac+Paracetamol, Diclofenac+Paracetamol, piroxicam. Aceclofenac is an orally administered phenyl acetic acid derivative with effects on a variety of inflammatory mediators. It is related to diclofenac. Through its analgesics and anti-inflammatory properties aceclofenac provides symptomatic relief in a variety of painful conditions. Paracetamol is a clinically proven analgesic and antipyretic agent with weak anti-inflammatory effect. Paracetamol has been proposed as 1st line therapy in all reviewed guidelines for treatment of acute low back pain. Although it has not been tested in placebo controlled trials in patients with acute or chronic back pain its efficacy for a wide variety of pain is well established and it is considered relatively safe (i.e. it does not cause physical dependence and is not associated with gastrointestinal side effects). This view is supported by the study of Clinical course and prognosis factors in acute low back pain: an inception cohort study in primary care practice, in which 90% of patients presenting with a first episode of back pain recovered on paracetamol and, in a few cases, rest⁵.

Piroxicam is a non-steroidal anti-inflammatory drug of the oxicam class used to relieve the symptoms of rheumatoid and osteoarthritis, primary dysmenorrhoea,

postoperative pain; and act as an analgesic, especially where there is an inflammatory component. Hence the present study was undertaken to compare the efficacy of piroxicam and combination therapy with aceclofenac and diclofenac alone in patients diagnosed of low back pain.

Method

This was a prospective study to assess the comparative efficacy of different NSAIDs in patients diagnosed with low back pain conditions. Two fifty three patients diagnosed of low back pain were randomly selected from Hospitals in Erode on OPD and IPD basis under the supervision of physician. The written consent of patients was taken on informed consent form in the local language. Patients of either sex in the age range of 18 to 60 years, suffering from low back pain were included. Demographic data and relevant medical history was obtained from all patients prior to initiation of therapy. Severity of pain ranging from 'no pain', 'mild', 'moderate', 'worst pain' was assessed by using Visual Analogue scale.

0	1-2	3-5	6-7	8-9	10
No Pain	Mild Pain	Moderate Pain	Severe Pain	Very Severe Pain	Worst Pain

Patients were interviewed by asking questions from the standard questionnaire and reviewed on a weekly basis. Those patients who met the study criteria were enrolled in to the study. All the necessary data including Age, sex, social status, past medical history, category of drug prescribed, dose etc. were collected and documented in a suitably designed data collection form, Information was collected from outpatients after they had visited the physician. Collected data were analyzed statistically for earlier stated objective. Data's are expressed as mean± SEM and analyzed by Tukey Kramer multiple comparison method. The values are statistically significant.

Table: 1: Characteristics of Patients Based on Their Sex

Age(Yrs)	Male(%)	Female(%)	Total(%)
19-28	12(10.43)	18(13.04)	30(11.85)
29-38	20(17.39)	26(18.84)	46(18.18)
39-48	29(25.21)	35(25.36)	64(25.29)
49-58	38(33.04)	37(26.81)	75(29.64)
59 & Above	16(13.91)	22(15.94)	38(15.01)

Table: 2: Drug wise distribution

DRUG	NO. OF PATIENTS (%)
ACECLOFENAC	45(18%)
DICLOFENAC	36(14%)
ACECLOFENAC+PARACETAMOL	45(18%)
DICLOFENAC +PARACETAMOL	67(26%)
PIROXICAM	61(24%)

Table:3: Comparative analysis AVG pain score NSAID'S drugs

AGE GROUP	ACECLOFENAC	DICLOFENAC	ACECLOFENAC + PARACETAMOL	DICLOFENAC + PARACETAMOL	PIROXICAM
19-28	5.75±0.65	4.5±0.54*	4.25±0.38**	3.91±0.34**	2.21±0.16***
29-38	5.71±0.89	5.74±0.22*	4.83±0.14**	5.08±0.21**	1.5±0.18***
39-48	5.68±0.47	4.9±0.83**	4.29±0.76**	4.16±0.67**	1.44±0.37***
49-58	6.16±0.85	5.25±0.39*	4.58±0.38**	4.14±0.58**	1.69±0.59***
59 & Above	6.15±0.45	5.4±0.26**	5±0.37**	4.08±0.57**	1.73±0.34***

Data's are expressed as mean± SEM ***p<0.0001 **p<0.01 *p<0.05 significant

Results

The present study was carried out in Hospitals, Erode District, Tamil Nadu, India. We are enrolled 253 patients according to the inclusion criteria. Patients were classified according to Socio demographic (age, gender, and weight). All these patients were under therapy.

Out of 253 patients, female candidates are more 138(54.54%) and 115(45.45%). male patients.

The more number of patients 75(29.64%) were coming under the age group of 49-58, followed by 39-48 years 64(25.29 %) of the total followed by 29-38 years 46(18.18 %) of the total followed by 59 & above years 38 (15.01 %) of the total, and the least number of patients 30(11.85 %) were under the age group of 19-28 in table 1.

Out of 253 patients more number of patients 77(30.43%) were under the weight group of 61-70, least number of patients 23(9.09%) were under the weight group of 30-40, 39 patients,(15.41%) were under the weight group of 41-50,65 patients (25.69%) were under the weight group of 51-60, and 51 patients (20.15%) were under the weight group of 70 & above.

Drug wise distribution

Out of 253 patients , 45(18%) taken piroxicam, 36(14%) taken diclofenac, 45(18%) taken aceclofenac+paracetamol, 67(26%) taken diclofenac+paracetamol and 61(24%) taken aceclofenac alone given in table 2 .

Comparative analysis AVG pain score between NSAID's drugs

In the age group of 19-28 average pain score after treating with aceclofenac was found to be 5.75, with diclofenac average pain score was found to be 4.5, with aceclofenac+paracetamol the average pain score was found to be 4.25, with diclofenac+paracetamol, the average pain score was found to be 3.91, while with piroxicam the average pain score was found to be 2.21, here piroxicam is extremely significant while comparing with aceclofenac and diclofenac.

In the age group of 29-38 average pain score after treating with aceclofenac was found to be 5.71, average pain score after treating with diclofenac was found to be 5.74, with aceclofenac+paracetamol, the average pain score was found to be 4.83, with diclofenac+paracetamol, the average pain score was found to be 5.08, while with piroxicam, the average pain score after treatment was found to be 1.5.

In the age group of 39-48 average pain score after treating with aceclofenac was found to be 5.68, average pain score after treating with diclofenac was found to be 4.9, with aceclofenac+paracetamol, the average pain score was found to be 4.29, with diclofenac+paracetamol, the average pain score was found to be 4.16, while with piroxicam, the average pain score after treatment was found to be 1.44.

In the age group of 49-58 average pain score after treating with aceclofenac was found to be 6.16, average pain score after treating with diclofenac was found to be 5.25, with aceclofenac+paracetamol, the average pain score was found to be 4.58, with diclofenac+paracetamol, the average pain score was found to be 4.14, while with piroxicam, the average pain score after treatment was found to be 1.69.

In the age group of 59 & above, average pain score after treating with aceclofenac was found to be 6.15, average pain score after treating with diclofenac was found to be 5.4, with aceclofenac+paracetamol, the average pain score was found to be 5, with diclofenac+paracetamol, the average pain score was found to be 4.08, while with piroxicam, the average pain score after treatment was found to be 1.73. The decrease in pain score was more pronounced with piroxicam and combination therapy describe in table 3.

Discussion

Low Back Pain (LBP) is a 'human condition' with 60-80% of the world population experiencing pain at some time in their life. Back pain is second only to the common cold as the most frequent reason for visiting a physician and is the most common chronic pain syndrome in individual countries. It is mostly a self limited illness i.e. many attack of low back pain resolve quickly,

All together a total of 253 patients were selected for the study, study was conducted for a period of 8 months. Out of these 253 patients, there were 115(45.45%) male patients and 138(54.54%) female patients. Most number of patients 77(30.43%) were under the weight group of 61-70, least number of patients 23(9.09%) were the weight group of 30-40, 39 (15.41%) were under the weight group of 41-50, 65(25.69%) were under the weight group of 51-60, and 51 patients (20.15%) were under the weight group of 70 & above.

Comparative analysis AVG pain score NSAID,s drugs

In the present study severity of pain was assessed using VAS between 5 groups of drugs. Score

of pain was compared in each age group and between each drugs. After the drug treatment it was found that pain score had decreased significantly. Piroxicam was more significant compared to other groups,

In the age group of (19-28), while comparing avg pain score between Piroxicam with Aceclofenac and diclofenac, piroxicam shows extreme significance, but comparing with combination therapy piroxicam has been showed less significant activity.

While comparing the average pain score in the age group of (29-38), piroxicam shows extreme significant activity with aceclofenac, moderate significant activity with diclofenac and less significant activity with combination therapy. In the age group of (39-48), while comparing average pain score between piroxicam with aceclofenac, piroxicam shows extreme significance, whereas with diclofenac, piroxicam shows moderate significant activity, comparing the significant activity with combination therapy piroxicam shows less significance.

While comparing the average pain score in the age group of (49-58), piroxicam shows moderate significant activity with aceclofenac and diclofenac. While comparing with combination therapy piroxicam had shown less significant activity. While comparing the average pain score in the age group of 59 & above, piroxicam had shown extreme significant activity with aceclofenac. Whereas with diclofenac, piroxicam shows moderate significant activity. While comparing with combination therapy piroxicam had shown less significance.

Piroxicam is a non-selective COX inhibitor possessing both analgesic and antipyretic properties. Piroxicam has got less cardiovascular risk compared to aceclofenac and diclofenac, since piroxicam has got once a daily convenience and high onset of action, since the half life is more(30 - 86 hrs) piroxicam once a day for a pain free day.

Conclusion

The present study was undertaken with the aim of comparing the efficacy of Piroxicam with other NSAIDs in patients diagnosed for low back pain. The severity of pain was recorded after the drug administration using Visual Analogue Scale (VAS). The decrease in score of pain was more pronounced with Piroxicam group and combination therapy compared to other groups. Thus we can conclude that piroxicam along with H2-receptor antagonist is more effective and it has got once daily convenience compared to other combination therapy.

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