Original Article

Osteoarthritis

Efficacy of Piroxicam in Osteoarthritis

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ABSTRACT

Objective: To evaluate the therapeutic efficacy of this most important nonsteroidal anti-inflammatory drug by using series of 60 patients with osteoarthritis.

Study Design: Cross sectional study.

Place and Duration of Study: The prospecting study was undertaken from amongst patients visiting the outpatient orthopedic department of District Head Quarter Hospital Charsadda of Khyber Pakhtunkhwa (KPK) for the period of six months from 1st January 2011 to 30th June 2011.

Materials and Methods: This study was conducted on a mixed population of patients presenting with symptomatic osteoarthritis, which is relatively a common disease. Studies have shown that, the age of 40, 0% of all persons developed from mild clinical symptoms to degenerative changes in their weight bearing joints.

Results: indicates a significant therapeutic efficacy as compared to placebo, both at the 2nd and 4th week of treatment. table 3 represent the comparison of Piroxicam with placebo in the reduction of mean walking pain (hip) 2nd & 4th week of treatment on the basis of four point scale.

Conclusion: The present study revealed sustained and significant improvement in the osteoarthritis of the knee or hip joint with Piroxicam treatment resulting in marked reduction in night-pain mean walking pain, and improved objective assessment in the functions of affected joints as compared to the findings emerging out of the use of the naproxen, aspirin and placebo.

Key Words: Piroxicam, Osteoarthritis, non-steroidal, anti-inflammatory

INTRODUCTION

Osteoarthritis is the most common arthopathy seen in elderly persons. The weight bearing joints are joints are principally affected by destruction & erosion of the cartilage followed by subchondral sclerosis & the formation of large calcified osteophytes (spurs) at the margins, leading to pain, deformity & limitation of movement[1,2]. Because the frequency of condition increases with age, it has long been thought to be a "wear & tear" degenerative process & hence is often referred to as degenerative joint disease[3,4] . Piroxicam is quite distinct from all other classes of nonsteroidal anti-inflammation drugs, in that, it has extended plasma half-life of 45-50 hours. Which enables Piroxicam, to maintain the therapeutic plasma drug concentration & thus on the clinical management of human inflammatory disease, throughout the day from the single daily dose. Piroxicam is potent irreversible inhibitor of prostaglandin cyclooxygenase & modulates the behavior of a variety of inflammatory cells. This quality of Piroxicam & oxicams in general make them the most potent drugs possessing antirehumatic, anti-inflammatory & analgesic activity. Pitts in 1982 reported that Piroxicam was the most potent of all the **NSAIDS** clinically available then[5]. Piroxicam inhibits the synthesis of prostaglandins, by irreversibly blocking of the enzyme cyclooxygenase (prostaglandin synthesis), which catalysis the conversion of arachidonic acid to endoperoxide compound the drug decreases the formation of both the prostaglandins & acid thromboxane. It also interferes with the chemical mediator bradykinin [6,7]. The therapeutic efficacy of this most important nonsteroidal anti-inflammatory drug by using series of 60 patients.

MATERIALS AND METHODS

This study was conducted on a mixed population of patients presenting with symptomatic osteoarthritis, which is relatively a common disease. Studies have shown that, b the age of 40, 0% of all persons developed from mild clinical symptoms to degenerative changes in their weight bearing joints[8].

Places & Duration of study: The prospecting study was undertaken from amongst patients visiting the outpatient orthopedic department of District Head Quarter Hospital Charsadda of KPK for the period of six months from 01-01-2011 to 30-06-2011.

Study Design: Cross sectional study.

One hundred twenty patients of either sex suffering from symptomatic osteoarthritis, confirmed clinically and radio logically, were included in this study who fulfilled, as per WHO criteria. The selected patients were divided into 2 groups and were administered the drugs under investigation as:

Groups:

Group – 1: Thirty patients were given 20mg Piroxicam twice daily for four weeks.

Group – 2: Thirty patients are given placebo (Lactose) daily for four weeks.

All these patients were advised to attend OPD regularly on a biweekly basis and evaluated for four weeks. Cross observations found consisted of joints with respect to pain, swelling and tenderness, were noted by the investigator. The various parameters as described above were investigated on a four point score/scale pain, swelling and evaluated or measured[12]. Statistical analysis was done by student's "t" test in order to determine any significance among various parameters.

The general condition of the patients was noted. The examination of the knee or/and hip was performed and the necessary investigations like HB%, ESR & Blood Urea were done according to standard laboratory methods before and after the treatment. Patients were also sent for radiological examination[13]. Any previous history if injury or of past symptoms in the hip was determined. Any past treatment or previous investigations were noted.

RESULTS

Table 1 indicates characteristics of all the patients included in this study with in the age range of 40 -60 years, the ratio of male & female & the involvement of the knee & hip joints and the number of the drop outs.

Table 2 represent the comparison of Piroxicam with placebo; these also indicate the reduction in mean walking pain (knee) & reduction in mean swelling of the knee joint, after 2nd & 4th week of treatment on the basis of four point scale & figure 5 &6 shows maximal extension / flexion . it is observed from this table that there is an improvement in the intensity of starting pain, pain at night (rest), pain on movement, range of movement maxima extension & flexion. Piroxicam however, indicates a significant therapeutic efficacy as compared to placebo, both at the 2nd and 4th week of treatment. table 3 represent the comparison of Piroxicam with placebo in the reduction of mean walking pain (hip) 2nd & 4th week of treatment on the basis of four point scale.

Table No. 1: Patient's characteristics

Treatment	Male	Female	Knee Joint	Hip Joint
Piroxicam	22	08	20	10
Placebo	23	07	20	10
total	45	15	40	20

Table 1 denotes the characteristics of all the patients covered in this study, who presented with signs & symptoms of osteoarthritis, aged between 40-60 years & indicating the inflammation of the major joints.

Male	Female
Mean 46.41	44.97
± S.E. ±0.58	± 0.70

Table No.2: Change in the therapeutic efficacy in parameter for the knee

Parameters	Piroxicam	Placebo
Degree of starting pain	- 48.8	- 7.6 *
Night pain	- 45.3	- 1.6*
Pain on movement	- 47.5	- 3.6*
Limitation of range of movement	- 44.1	- 2.3*
Pain on walking	-51.7	- 8.4*
Swelling	- 47.8	- 5.2*
Tenderness	- 50.2	- 6.3*
Maximal extension	+ 5.6 cm	.7 cm*
maximal	- 10.3 cm	+ .1 cm*

Table 2 shows comparison of Piroxicam, with placebo & improvement in the therapeutic (objective) efficacy in all the parameters of the knee joint (Walpole's Z score, 1982). * Piroxicam vs placebo $P < 0.0001$.

Table No.3: Change in therapeutic efficacy in parameters for the hip

parameters	Piroxicam	Placebo
Degree of starting pain	- 42.3	- 7.1*
Night pain	- 41.8	- 5.6*
Pain on movement	- 40.5	- 8.2*
Pain on walking	- 44.2	- 6.2*

Table 3 shows comparison of Piroxicam, with placebo & improvement in all parameters of the hip joint (Walpoles Z score 1982)

*Piroxicam vs placebo $P < 0.0001$

Table No.4: Patients overall assessment of therapeutic efficacy

Therapy	Very good	Good	Fair	Poor	Total
Piroxicam	60.3%	28.2%	11.5%	0.00	28
Placebo	0.0	.02	29.7%	67.1%	20

Table 4: indicates the patient's self assessment of the therapeutic subjective efficacy of the drug under investigation at the conclusion of therapy (drop outs n = 20).

DISCUSSION

Lasagna in 1958 experienced the difficulty in the evaluation & measurement of pain [10]. Similarly many studies validate the subjective pain intensity & pain relief scores in clinical trials [11]. Our study has the merit of including a large number of objective parameters; such as a pain at night, pain on movement, limitation of movement, maximal extension & flexion etc. which strengthen the findings for ultimate assessment of the therapeutic activity of these drugs. The maximal extension &flexion at the knee joint as well as adduction & abduction at the hip joint was extremely limited & pain full prior to the commencement of the therapy of NASIDs, administered in this study. The result relating to Piroxicam was again significantly

greater in comparison to placebo. From this study it is clearly demonstrated that the (beneficial) significant therapeutic improvement in the functions of the joints & overall objective assessment of the knee & hip joint as a result of the administration of Piroxicam in particular coincides with the findings of goldie in 1981, who in his study in sixty patients with osteoarthritis of hip or knee joint, reported that Piroxicam was significantly superior in reducing pain on movement, pain at night (rest)[12]. in the present study it has been found that Piroxicam, exhibited marked & sustained relief of the symptoms of osteoarthritis i.e. the patient who was not able to walk for even 20 ft, could after the treatment with Piroxicam, go with ease for about 50 ft; mainly due to greater mean reduction from based line values for spontaneous pain, swelling & tenderness, as exhibited after 7 days of uninterrupted therapy. Our study safely leads to conclude that Piroxicam is significantly superior in alleviating all the signs & symptoms of osteoarthritis. It was noteworthy to observe that the side affect arising out of the administration of Piroxicam were of mild nature & significantly lesser. From the above results it was concluded that Piroxicam verses placebo is highly significance ($p < 0.001$).

CONCLUSION

The present study revealed sustained and significant improvement in the osteoarthritis of the knee or hip joint with Piroxicam treatment resulting in marked reduction in night-pain mean walking pain, and improved objective assessment in the functions of affected joints as compared to the findings emerging out of the use of the naproxen, aspirin and placebo.

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