



Comparative study of anti-inflammatory effect of diclofenac and aceclofenac on human

Author

Dr Amit Kumar Jha

Associate Professor, Department of Pharmacology Vardhman, Institute of Medical Sciences,
Pawapuri (Nalanda) Bihar

Corresponding Author

Dr Amit Kumar Jha

Associate Professor, Department of Pharmacology VIMS, Pawapuri, Bihar, India

Abstract

Various exogenous and endogenous stimuli incite a complex reaction in vascularized connective tissue called inflammation. Non steroidal anti inflammatory drugs are used to reduce inflammation. Preferential COX-2 inhibitors namely diclofenac and aceclofenac was taken for my present work and anti inflammatory effect was compared with control and with each other. Student-t-test-was done to compare result. It was found that inflammation varied significantly across the three groups (P=.000) Compared to control, inflammation was less in both diclofenac and aceclofenac (P=.00). Reduction of inflammation with diclofenac was less. In comparison to aceclofenac at end. Aceclofenac is more efficacious than diclofenac.

Keywords: Aceclofenac, diclofenac, Anti inflammatory effect.

Introduction

The inflammation dilutes, destroys or isolates the causation agent and sets into motion the sequence of event that heal and reconstitute the damaged tissue.¹

Aceclofenac is moderately COX-2 selective congener of diclofenac having similar property and may confer chondroprotective.²

The basic morphologic patterns, which frequently have clinical significance are (serous, fibrinous, suppurative) inflammation along with ulceration.

Aceclofenac is more gastric – friendly as it is somewhat –Cox-2 Selective and is also longer acting.³

Materials and Methods

This work was done at the department of pharmacology of vardhman Institute of Medical science, of pawapuri Bihar. Regarding ethical aspect, I had informed concerned authority of this college. The patients were grouped as control, diclofenac, aceclofenac for induction of inflammation. For studying anti-inflammatory effect urate induced synovitis method of Mc carty et.al was adopted.⁴

Preparation of sodium urate crystal. 4gm sodium hydroxide pellet were dissolved in 400ml distilled water in a glass beaker. 1.68gm uric Acid was added. The resultant opaque preparation was allowed to remain over night at room temperature.

The next morning the crystals were harvested by decanting the supernatant solution and were then washed, 3 times in cold saline resuspended in saline and sterilized in an autoclave. Weight of aceclofenac and diclofenac taken during experiment was 100mg and 50mg respectively. Suspensions for injection were kept in rubber-stoppered multi-dose vial containing 15 to 24 mg urate per ml. Men weighing between 50 to 60 kg. were taken. The skin above one knee was disinfected and a sterile 21 gauge needle was inserted into the joint. Slight aspiration produced a small amount of clear viscous synovial fluid indicating entry into joint. The needle was left in place, a syringe containing the urate suspension was attached and volume from 1 to 5 ml was injected into the joint (approximately 2 to mg urate). One hour before the injection of urate crystal. Men were treated with test compound or the standard. Experiment was designed so that 5 pair of men was tested on each of 2 days. On the first day only one pair men received the drug one week later the opposite knee of each pair of man was injected but the other pair of men was Treated.

Statistical Analysis: Scoring system was adopted in which inflammatory symptom ranging from tenderness limping was assessed. Data was presented in (Mean \pm SEM) and were analysed using statistical package in for social scientist 10 (SPSS) student's t-test and ANOVA were applied to compare significance between different groups ($p < 0.05$).⁵

Results and Discussion

(Edema) With control diclofenac and aceclofenac were (19.5 \pm .58), (14.60 \pm .40) and (13.10 \pm .54) respectively four hour after drug administration. The mean edema in three groups varied significantly [F(2,27)=140.48, P=.000] the mean edema of aceclofenac group was significantly less than control [t (18)=8.14, p=.000] .It was also significantly less in diclofenac group in comparison to control [t(18)=6.44 P=.000] However the mean swelling in aceclofenac group

was found less in comparison to aceclofenac group [t (18)=2.58 P=.018] Sehgal A et al in year 2015 conducted anti-inflammatory work and found after 8 week that swelling reduction with aceclofenac was from 9.16 \pm .03 to 4.88 \pm .79 and with diclofenac group was from 8.74 \pm .66 to 5.87 \pm .92.⁶ It became significant that Aceclofenac reduced the swelling more than diclofenac group .

Conclusion

From above observation it is evident that aceclofenac is more efficacious than diclofenac as far as anti-inflammatory effect is concerned.

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