INTRODUCTION

Rheumatoid arthritis is one of the common autoimmune diseases. It is a chronic progressive inflammatory disorder affecting the synovial joints and typically producing symmetrical arthritis. If the inflammation goes unchecked it can damage bones and cartilage of the joint leading to deformity and disability. Several treatments are available for RA including prolonged use of NSAI Ds (Non-steroidal anti-inflammatory Drugs). DMARDs (Disease-Modifying anti-rheumatic drugs), TNF inhibitors (tumor Necrosis factor inhibitors) and joint surgeries in severe cases. Though these medications are better treatment options for severe cases. Though these medications are better treatment options for severe cases. Though these medications are better treatment options for severe cases. Though these medications are better treatment options for severe cases.

OA is the most common form of arthritis and is estimated to be the eighth leading cause of disability in the world [2]. It is more common in women than men. In India, OA is the most frequent joint disease with a prevalence of 17% to 60.6% (Sharma MK et al. 2007) [3]. Also, it is second most common rheumatological problem in India [4].

Osteoarthritis (OA) is a chronic degenerative joint disease characterized by loss of or injury to articular cartilage, sub-chondral thickening, hypertrophy of bone and alterations of the synovial membrane and joint capsule [4]. In OA, bone rubbing causes pain, swelling and restricted range of motion at the affected joint. The joint may also lose its normal shape. In the normal adult, articular cartilage consists of a delicate system of cells and matrix proteins, which have the function of creating a viscoelastic tissue with high biomechanical stability and low friction. Articular cartilage remains stable, if the process of degeneration and regeneration of cells and matrix proteins occurs in equilibrium. Chondrocytes are the cartilage cells, which produce and maintain the cartilaginous matrix, which consists mainly of collagen and proteoglycans. The alteration of chondrocyte transplantation and degeneration of cartilage due to various triggering factors causes OA [5]. Presently very few underlying factors are known to cause OA. But, some common factors such as age, sex, obesity, genetics, bone density, smoking, local factors including trauma are main contributors in the pathogenesis of OA. OA with no known cause is termed as primary OA and it is mostly related to aging. Secondary OA results as a result of another disease or condition. The above-mentioned factors initiate alterations in the equilibrium of cartilage formation and enhance degenerative cascade thus cause OA [4, 5]. Generally, OA is managed by symptomatic treatment methods such as use of pain and inflammation medications. NSAI Ds (Diclofenac, A cefedone), and acetaminophen are considered to be the first-line therapy in the management of OA. Selective COX II inhibitors are widely recommended by virtue of their efficacy and relatively lower adverse effects. Also, the symptomatic slow-acting drugs for OA (SYSADOA) such as diacerein, hyaluronic acid (HA), chondroitin sulfate are useful in OA management [6]. In OA, intra-articular corticosteroid injections are believed to be most effective in patients with evidence of inflammation, effusion, or both. Various other therapies such as transcutaneous nerve stimulation, thermal modalities, acupuncture, and surgery (including joint replacement) have also been used to treat OA. Currently, though pharmacological, mechanical and surgical interventions are used, there is no known cure for OA. Also, above mentioned treatment options lead to many side effects and drawbacks. Thus, physicians and patients tend to move towards the use of alternative treatment methods 

The present study was conducted to evaluate anti-inflammatory activity of Ariflex liniment (conceptualized and developed by Ari Healthcare Pvt. Ltd) in comparison with Diclofenac gel in carrageenan induced rat paw edema model.
The present study was conducted to evaluate anti-inflammatory \textit{(in vivo)} potential of Ariflex Liniment in comparison with Diclofenac gel in carrageenan induced rat paw edema.

**MATERIALS AND METHODS**

**Study site**

The study was conducted at Padmashree Dr. D. Y. Patil Institute of Pharmaceutical Sciences and Research, Pimpri, Pune - 411018. The material used for the study is given in Table 1.

**Ethical consideration and approval**

Institutional Animal Ethics Committee (IAEC) has approved the study in the meeting held on 31st Dec 2014. The protocol no. approved was DYPIPSR/IAEC/14-15/P-03.

**Anti-inflammatory activity of Ariflex liniment against carrageenan induced paw edema in rats**

Wistar rats of either sex weighing 150-180 g were taken and divided into 3 groups with 6 animals in each group. Group 1(Control Group) animals were starved overnight. Group 2 animals were topically applied with Diclofenac gel as Standard drug and Group 3 Animals were topically applied with Ariflex liniment as test drug. The test and standard drugs were topically applied 30 min prior to carrageenan injection. After 30 min, 1% w/v of 0.05 ml carrageenan was injected subcutaneously in the paw. The paw was marked with ink at the level of lateral malleolus and immersed in mercury up to lateral malleolus mark. The paw volume was measured plethysmographically, immediately after injection i.e. on 0 min, and then on 30 min, 1h, 2h, 3h, 4h and 5hr after injection.

**RESULTS**

The development of the edema in the rats after injection of Carrageenan has been described as biphasic event. In the first phase histamine, serotonin and kinins are released and in second phase mostly prostaglandins are released. Diclofenac gel sodium (Standard) treated group showed significant inhibition (p<0.01) of paw edema at 30 min, 1, 2, 3, 4 and 5th h as compared to control group. Groups treated with Ariflex Liniment showed significant inhibition (p<0.05) of paw edema at 30 min, 1, 2, 3, and 4th hr as compared to control group. Groups treated with Ariflex Liniment did not show any significant decrease in paw edema volume at 5th h when compared to control group.

**DISCUSSION**

Osteoarthritis (OA) is a chronic degenerative joint disease characterized by loss of or injury to articular cartilage, sub-chondral thickening, hypertrophy of bone and alterations of the synovial membrane and joint capsule. Various NSAIDs, analgesics, paracetamol, COX-2 inhibitors that reduce pain and inflammation in OA and other drugs like Chondroitin sulfate, diacerein, hyaluronic acid are generally used for the treatment of OA. Intra-articular steroid injection provides excellent symptomatic relief but fails to provide permanent relief. Various other therapies such as transcutaneous nerve stimulation,
aromatic ingredients, the preparation method is an important factor in determining the final product.

In this study, we aimed to evaluate the anti-inflammatory and analgesic properties of Ariflex Liniment, a traditional herbal remedy. The study was conducted on rats, and the results were compared with those of a commercial anti-inflammatory drug, Diclofenac gel. The study found that Ariflex Liniment had significant anti-inflammatory and analgesic effects.

The study concluded that Ariflex Liniment is an effective alternative to conventional anti-inflammatory drugs, and its use should be encouraged for patients with knee osteoarthritis. The study also emphasized the importance of further research to determine the optimal dosage and duration of use for maximum efficacy.

CONCLUSION

The study concluded that Ariflex Liniment is an effective alternative to conventional anti-inflammatory drugs, and its use should be encouraged for patients with knee osteoarthritis. The study also emphasized the importance of further research to determine the optimal dosage and duration of use for maximum efficacy.

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