Efficacy of Immunol (Septilin) in Osteomyelitis: An experimental study in Dogs


Abstract

Tibial osteomyelitis was experimentally induced in 18 apparently healthy male mongrel dogs. The animals were equally divided into three groups after the onset of osteomyelitis.

Group I animals were treated only with Immunol (Septilin), 2 tabs. t.i.d. for 4 weeks, while Group II received oxytetracycline I.M. Group III received both Immunol and oxytetracycline in combination.

While a satisfactory response was seen in Group I dogs, Group III animals showed more appreciable response. Osteogenic and calcification activities began about 2-3 weeks earlier in the latter group.

Immunol did not cause untoward or toxic side-effects.

Introduction

Bacterial infection of bone continues to pose a therapeutic challenge. The development of newer drugs, surgical techniques and hospital management has improved the results of treatment of osteomyelitis but the prognosis remains poor. In addition, the increased use of orthopaedic surgery has increased the chances of developing osteomyelitis as a post-surgical complication. In the early phase of the disease when open skin wounds are not developed, treatment by surgical intervention is very often not necessary. Antibiotics, if used for longer times, may produce toxic effects like gastrointestinal disturbances, hypersensitivity and other allergic reactions, etc. Immunol (Himalaya) is an Ayurvedic remedy which has anti-bacterial, anti-inflammatory and antiexudative properties without exhibiting any side-effects (Agrawal and Saxena, 1980; Garga, 1980). These properties of Immunol prompted us to use it in the treatment of osteomyelitis in dogs.

Materials and Methods

Osteomyelitis was induced experimentally in 18 apparently healthy male mongrel dogs weighing 10-15 kg by injecting one ml inoculum containing about 10^8 haemolytic strain of 361/FRI of *Staphylococcus aureus* (Bergdoll, Wisconsin) into the right tibial marrow cavity. The dogs were screened for gastrointestinal and blood protozoal parasites and were kept under identical conditions. The dogs were divided into 3 groups of 6 animals each after the onset of osteomyelitis (6-8 weeks), without developing open skin wounds.

The animals of the first group were treated with Immunol alone, at a dose of 2 tablets, three times a day, for four weeks. The dogs of the second group were treated with oxytetracycline intramuscularly at a dose of 10 mg/kg body weight in the first two weeks, followed by half the dose in the third week. In the animals of the third group, both Immunol and intramuscular oxytetracycline were given at the same dose schedule as adopted for the first and second groups. Selection of oxytetracycline was made only after sensitivity assay. The dogs were examined clinically and radiographically at different time intervals in order to assess the different therapeutic regimens.

Results

Osteomyelitis was established in all the dogs after introducing the haemolytic strain of Staphylococcus aureus alone in the tibial metaphysis, which provided an adequate basis for the different therapeutic manoeuvres. Four dogs of Group I treated with Immunol alone exhibited signs of recovery by a considerable reduction of local inflammatory swelling and pain. The animals started bearing weight on the affected legs. Radiographically, there was clearing up of localized abscess pockets, periosteal reactions, osteolytic process and sequestrum which created favorable conditions for normal bone formation by 4-7 weeks after initiation of treatment. By the 9-12 weeks, substitution of the radiolucent portion of the cortex of the tibia by increased radiodensity cancerous bone was initiated, indicating mineralization of bony trabeculae. In the remaining two dogs of the same Group I, additional therapy with Immunol for 3 weeks was advocated for satisfactory responses.

In the dogs receiving parenteral oxytetracycline (Group II), there were almost similar findings as observed in the animals of Group I.

The response to treatment in Group III animals, treated with Immunol plus the antibiotic, was more appreciable than in the animals treated either with Immunol or oxytetracycline alone. Osteogenic and calcification activities were initiated about 2-3 weeks earlier in the animals of the third group.

Immunol has been successfully used in treating various infectious diseases in animals as well as in human beings. Immunol has been shown to inhibit the growth of many gram +ve and gram –ve micro organisms (Vishwakarma, 1979). It raises the general defence mechanism of the body and thus helps to overcome the infection and inflammatory process (Ross,1984). Shrivastava (1985) reported that Immunol improves phagocytosis and minimizes the use of antibiotics. The response to Immunol in the treatment of osteomyelitis in the present investigation corroborates the findings of John (1985) and Shrivastava (1985). It is, therefore, concluded that Immunol combined with an antibiotic offers
the best hope for a satisfactory resolution of osteomyelitis.

Summary

Immunol, with and without parenteral oxytetracycline, was tried in dogs after inducing tibial osteomyelitis. Clinical and radiological studies were undertaken to evaluate the efficacy of Immunol. The bone infection responded to long-term Immunol therapy alone. However, the use of Immunol in combination with the appropriate antibiotic resulted in more appreciable response. No untoward or toxic effects of Immunol were observed.

References


