

Role of Bisphosphonates in Giant cell tumor of bone- a prospective randomized control study.

Dr.Siddarth dubey,Dr.Shah Alam Khan,Dr.Rastogi,Dr.Asith mirdha

Dept.of Orthopaedics,A.I.I.M.S,New Delhi,India

Abstract:

The primary treatment of Giant cell tumor of bone is surgical management. Bisphosphonates are antiresorptive drugs which inhibit osteoclast mediated bone resorption and shown to have inhibitory effect on various tumours. The present study aims to establish clinical, histopathological and radiological response of intravenous zoledronic acid on giant cell tumor.

Methodology: Prospective randomized controlled study, a group of 30 patients of GCT has been divided into two equal groups. Patients in control group did not receive any adjuvant therapy before surgery. Patients in bisphosphonate group received three doses of injection zoledronic acid at four weeks interval prior to definitive surgery. The evaluation was done based on size of swelling, VAS score, plain radiograph, MRI and histopathological and Transmission electron microscopic examination findings.

Results: Significant reduction in VAS score (from mean 5.33 to 1.8), increased mineralization particularly at periphery of lesion in plain radiograph, statistically significant increase in mean apoptotic index, P value <0.0001 (mean 41.46 in bisphosphonate group and 6.06 in control group) was noted in bisphosphonate group. No significant change in tumor volume is noted in MRI. No significant side effect was noted.

Discussion: One distinctive feature of pathogenesis of GCT is osteoclastogenesis which causes extensive bone destruction, use of Zoledronic acid counteracts this bone destruction. Further possible antiangiogenic effect of intravenous bisphosphonates inhibits tumor growth and provides symptomatic improvement.

Conclusion: Bisphosphonates alleviate pain, produce sclerosis and induce apoptosis hence decrease the rate of tumor progression and decrease the rate of local bone destruction, hence they are an useful adjuvant to surgery in GCT.