

**FC-139****Clinical and pathological results of Denosumab in the treatment of giant cell tumor of the bone**

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**Introduction:** Giant cell tumor (GCT) of the bone is primary aggressive tumor of bone causing an osteolytic lesion with cortical thinning, expansion and destruction. It consists of osteoclast like giant cells and stromal cells stimulating them. Although surgical treatment is the treatment of choice, the main problem is the rate of recurrence in long term follow-up. In literature, there are recurrence rates between 6-25 % despite aggressive curettage, high speed burr and adjuvants as phenol, liquid nitrogen, bone cement. In recent years after the discovery of RANK receptors in giant cells and RANK ligand in stromal cells activating them, a human monoclonal antibody against RANK ligand, Denosumab started to be used in the treatment of GCT.

**Aim:** The aim of this study is to evaluate the clinical and pathological results of denosumab in the treatment of GCT of the bone.

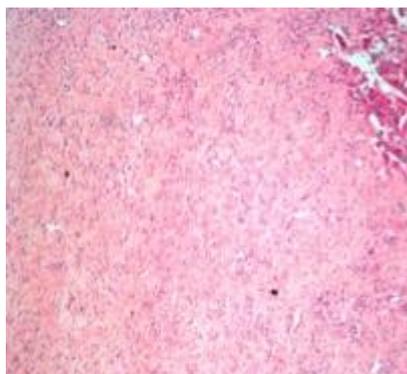
**Material and Method:** 11 patient (5 male and 6 female) diagnosed as GCT of bone between 2011 and 2014 included in this study. Mean age was 39.09 years (between 26-51 years). Tumor localized in distal femur in five (one of them was multicentric located also in ipsilateral proximal femur), proximal fibula in two, proximal tibia in one, proximal humerus in one, distal radius in one and sacrum in one patient. 6 of the patients has previous operations (one proximal fibula resection and other curettage and bone cement) in other centers and has pathologically and radiologically proven recurrences. Three of the patients which has operated before has recurrence in both bone and soft tissue. Two of the patients has lung metastasis. Mean follow-up period is 17 months (between 10-30 months). 10 cycles of 120 mg Denosumab (Xgeva<sup>®</sup>, Amgen-GlaxoSmithKline) used with the permission of Ethical board of Ministry of Health. The radiological investigation, VAS scores and MSTS scores recorded in the beginning, after third cycle, at the end of the cycles and at the last follow up.

**Results:** The lytic lesion is progressively ossified in all patients, especially the soft tissue expansion of the tumor is ossified at the end of the treatment. Two patients with lung metastases underwent regression. Eight patient underwent to surgery (3 curettage and bone grafting, 1 curettage and bone cement, 2 resection and endoprosthetic replacement and 1 resection with reconstruction with vascularized fibula and resection in one patient who underwent proximal fibula resection and had recurrence in soft tissue). 3 patients which has excellent radiological response followed without any intervention. Pathological examination showed loss of giant cells in 95% of tumor and increased osteoblastic activity. Visual analog pain scores was 7 and dropped to 2 at the last follow-up. Mean MSTS scores was 87.6 at the last follow-up. No complications occurred during treatment.

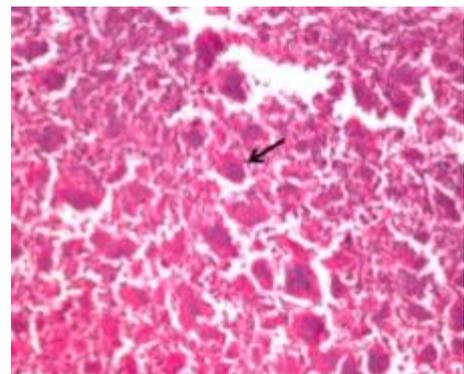
**Conclusion:** Denosumab is showed to be very effective in the medical treatment of GCT of the bone. The confusion in the literature is that no studies answers if Denosumab treatment alone is enough for treatment.



**Figure 1**



**Figure 2**



**Figure 3**



**Figure 4**



**Figure 5**