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Denosumab – A new bullet in the armamentarium for Giant Cell Tumor

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Introduction: In view of the benign nature of giant cell tumors (GCT) there is generalised consensus that function preserving intralesional surgery (curettage) is preferable to more morbid resections. Often there is a dilemma when a surgeon has to decide on a procedure that would offer the least risk of local recurrence while reducing the morbidity of surgery and achieving the best long term functional outcome. Denosumab a fully human monoclonal antibody that binds and inhibits RANKL has the possibility of reducing the morbidity and facilitating surgery in GCT.

Questions: We asked if Denosumab could help reduce the morbidity of surgery or facilitate the ease of the planned procedure?

Methods: An analysis of prospectively collected data of 90 cases of GCT operated between February 2014 to February 2015 was done. 22 (24%) of these patients received Denosumab. There were 14 males and 8 females. There were 17 primary and 5 recurrent tumors. The age ranged from 17 to 41 years with a median of 28 years. The indication to start Denosumab was on a case by case basis with the aim to either reduce the morbidity of surgery or facilitate the ease (by formation of an ossific rim) of the planned procedure. The intent was documented at the start of therapy: *convert resection to curettage (R-C), facilitate ease of resection (FR) or facilitate ease of curettage (FC)*. Denosumab was given in a dose of 120 mg subcutaneously at 0, 8th, 15th and 30th day and subsequently at monthly intervals (max- 6 doses). The response during treatment was assessed radiologically and clinically at 4 weekly intervals and documented. The follow up of the operated cases range from 1 – 13 months (median 6 months)

Results: The mean number of doses received was 6 (3 to 7). 19 of 22 cases (86 %) cases achieved the desired result (**R-C**: 9 of 11 cases, **FR**: 6 of 7 cases, **FC**: 4 of 4 cases). None of the patients reported any adverse effects while on treatment. One case (**R-C**) had a recurrence at 10 months

Conclusion: Based on our experience denosumab has the potential to reduce the morbidity and facilitate ease of index surgery in GCT thus improving functional outcomes.

As the end point of this study was reduction in surgical morbidity the follow up is very short. A longer follow up is mandated to decide what effect the use of Denosumab (especially converting potential resections to curettage) has on local disease control. Will this reduction in morbidity come at the cost of decreased local control is yet an unanswered question?