

## AB246. The role of denosumab in the management of un-resectable giant cell tumour of bone: a systematic review with an illustrative case report

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**Background:** Giant cell tumours of bone (GCTB) are benign but locally aggressive tumours which have a predilection for the metaphyseal-epiphyseal junction of long bones. GCTB represent approximately 20% of all benign bone tumours, and 5% of all bone tumours. The management of inoperable GCTB is challenging and controversial. Multidisciplinary team input is needed to achieve optimal patient outcomes. Surgical revision remains the gold standard intervention, however often has high associated morbidity owing to the tumour burden, resultant instability, and encroachment onto local soft tissues such as blood vessels and nerves. In recent years denosumab has emerged as a potential alternative in the management of patients deemed un-resectable. Denosumab was licenced by the FDA for use in GCTB deemed un-resectable in 2013. While early research suggests that denosumab has a significant positive effect in the management of inoperable GCTB high quality research in this field is lacking. This systematic review aims to summarize the current research

and highlight areas of interest to guide future work.

**Methods:** A systematic review was carried out to study the effects of denosumab therapy on un-resectable GCTB (search performed on PubMed®, Scopus®, and ScienceDirect®). A total of 14 reports, corresponding to 7 clinical trials, were identified as meeting the pre-specified inclusion criteria. Full-text review was performed of the relevant research.

**Results:** On average, 45% (24–92%) of patients had observer-reported clinical benefit from denosumab therapy, defined as improvement in either pain, mobility, or function. Similarly the majority of patients commenced on denosumab therapy achieved radiographic evidence of disease stability. Denosumab was well tolerated, serious adverse events were rare, with grade III/IV adverse events were occurring in 16% of patients.

**Conclusions:** Denosumab therapy appears to be a safe and efficacious treatment for the management of un-resectable GCTB. Rapid and sustained reductions in pain and disability are commonly observed. Disease stability is achieved in the majority of patients, and evidence of a rapid and sustained decrease in markers of bone metabolism is observed following treatment initiation. The quality of identified studies is low, as such further high quality research is needed in this field.

**Keywords:** Giant cell tumour (GCT); giant cell tumour of bone (GCTB); denosumab

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