Abstract # 20109

Bisphosphonates versus Denosumab for Prevention of Pathological Fracture in Advanced Cancers with Bone Metastasis: A Meta-Analysis of Randomized Controlled Trials

Humaid Al Farii MD, MRCS, *Abbey Frazer MD, Leila Farahdel MD, Faisal AlFayyadh MD*; ***Robert Turcotte MD, FRCSC.***

PURPOSE

The aim was to analyze the efficacy of zoledronic acid (ZA) versus denosumab in the prevention of pathological fractures in patients with bone metastases from advanced cancers by evaluating all available randomized controlled trials (RCTs) on this subject.

METHODOLOGY

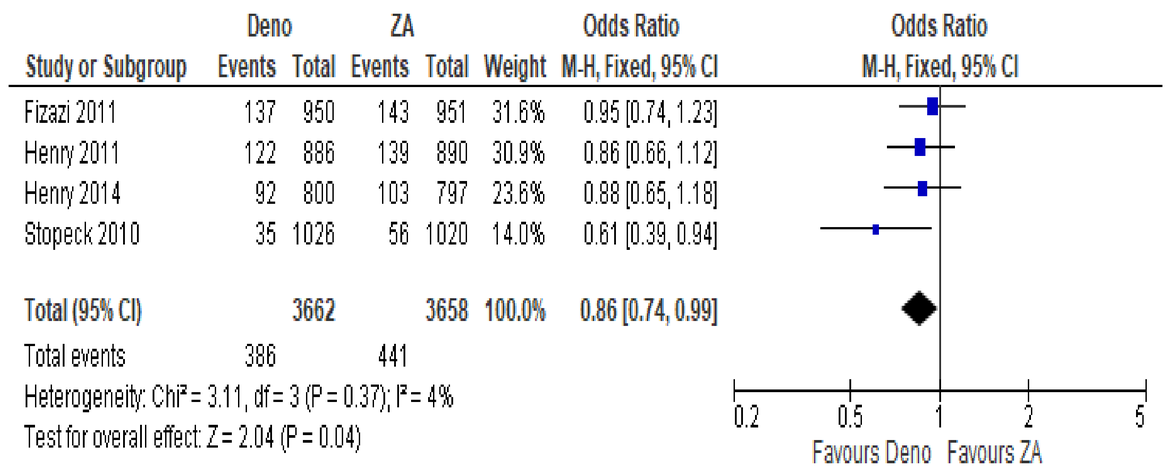
A systematic search of electronic databases (PubMed and MEDLINE) was performed to identify all published RCTs comparing zoledronic acid with denosumab in prevention of pathological fractures in bone metastases. Risk of bias of the studies was assessed. The primary outcomes evaluated were pathological fractures.

RESULTS

Four RCTs (7320 patients) were included.

Denosumab was superior to ZA in reducing the likelihood of pathological fractures, when all tumour types were combined (OR 0.86, 95% CI [0.74, 0.99], $p = 0.04$).

Denosumab was favoured, however not statistically significant, over ZA in endodermal origin (breast and prostate) (OR 0.85, 95% CI [0.68, 1.05], $p = 0.13$) and mesodermal origin tumours (solid tumours and MM) (OR 0.87, 95% CI [0.71, 1.06], $p = 0.16$).



CONCLUSION

Denosumab significantly reduces the likelihood of pathological fractures in comparison to ZA in patients with bone metastases. When pathological fractures were grouped by tumour origin (endodermal or mesodermal), there was no significant difference between denosumab and ZA. Further long-term studies are needed to confirm the effectiveness of these treatment regimens.