



\*\*Denosumab is slightly more effective in preventing skeletal morbidity (at least in other solid tumours), easier to administer and avoids renal monitoring. However, needs to be given every month whereas zoledronic acid can be given 3 monthly, is 10x more expensive and difficult to discontinue due to rebound osteolysis.

UKINETS Bitesize Guidance  
for the use of zoledronic acid/denosumab\*  
in patients with bone metastases  
from Neuroendocrine tumours (NETs)

Bone metastases occurred in 25% of all phaeochromocytomas and paragangliomas (25 out of 100), 20% of high grade neuroendocrine carcinomas (9 out of 46), 9% of carcinoid tumours (30 of 341), and 8% of pancreatic NETs (12 of 153).

A multi-institutional study in the US (2004-2008) [part of collaboration with the National Comprehensive Cancer Network (NCCN) Oncology Outcomes database] identified 82 patients out of 691 (12%) with a diagnosis of a neuroendocrine tumour (NET) who developed bone metastases.

Of the 82 patients with bone metastases, 59% were reported to be symptomatic at time of detection.

Among the patients who were asymptomatic at detection, 21% went on to develop a skeletal-related event.

Pain from bone metastases is a cause of impaired performance status and psychological distress among patients with cancer.

Bone metastases from NETs have unique features on radiological and nuclear imaging, and may be missed by conventional radiography.

Currently, there is no consensus regarding the management of bone metastases from NETs, and guidance has to be extrapolated from studies conducted in other solid tumours.

## References

Berenson JR. (2005) Recommendations for zoledronic acid treatment of patients with bone metastases. *The Oncologist*. 10: 52-62.

Coleman R, Body JJ, Aapro M, Hadji P, Herrstedt J. (2014) Bone health in cancer patients: ESMO clinical practice guidelines. *Annals of Oncology*. 25: (Supplement 3) iii124-iii137.

Gralow JR, Biermann JS, Farooki A, Fornier MN, Gagel RF, Kumar R et al. (2013) NCCN Task Force Report: Bone Health in Cancer Care. 11: (Supplement 3) S1-S51.

Van Loon K, Zhang L, Keiser J, Carrasco C, Glass K, Ramirez MT et al. (2015) Bone metastases and skeletal-related events from neuroendocrine tumors. *Endocrine Connections*. 4: 9-17.

Van Poznak C, Somerfield MR, Barlow WE, Biermann JS, Bosserman LD, Clemons MJ et al. (2017) Role of bone-modifying agents in metastatic breast cancer: An American Society of Clinical Oncology – Cancer Care Ontario focused guideline update. *Journal of Clinical Oncology*. 35: 3978-3986.

With special thanks to Prof. Rob Coleman for his invaluable input, and to Charlotte Fribbens for reviewing Feb 2024.

V.2 25/11/2023