321P Response evaluation of cancer therapeutics in metastatic breast cancer to the bone: A single arm phase II study of whole-body magnetic resonance imaging

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Background: Accurate and reliable evaluation of response to systemic anti-cancer therapy (SACT) is fundamental in the management of metastatic breast cancer (MBC). CT and bone scans (BS) have significant limitations in assessing SACT response in bone disease in MBC, whereas whole-body magnetic resonance imaging (WB-MRI) shows significant promise. Published retrospective data show that the addition of WB-MRI to body CT alters treatment decisions in MBC. The primary objective of this study was to evaluate whether WB-MRI identifies progressive disease (PD) earlier than CT scans in patients with bone-only MBC.

Methods: Participants were enrolled when starting first or subsequent SACT for bone-only MBC, as established initially by BS and CT thorax, abdomen and pelvis. Baseline WB-MRI was performed within 2 weeks of trial entry. CT and WB-MRI were performed every 12 weeks until definitive PD was evident in one or both modalities. At PD, BS was assessed for bone disease progression. Radiologists independently reported CT, WB-MRI or BS and were blinded to the other modalities. Participant questionnaires were undertaken at weeks 12 and 36 to evaluate tolerability and satisfaction with WB-MRI and CT.

Results: Forty-five participants were enrolled, with a median time on-study of 24 weeks (range 1-84 weeks). Two patients were excluded due to unequivocal liver metastases on...
baseline WB-MRI; two had clinical progression before imaging PD; one was lost to follow up. Twenty-nine have had PD on imaging; eleven continue on-study. In 65.5%, PD was evident on WB-MRI only; 34.5% had PD on CT and WB-MRI concurrently; none had PD on CT only (McNemar’s test p < 0.0001). PD on BS was reported in 55.6% of cases of bone CT/MRI progression. Overall questionnaire response rate was 63.8%. No differences were found between CT and WB-MRI in levels of concern, comfort or pain at week 12 or 36. All participants reported satisfaction levels as ‘good’ or ‘very good’ for both modalities.

Conclusions: WB-MRI identifies PD before CT in most patients with bone-only MBC. Further studies will evaluate whether earlier identification of PD with WB-MRI and earlier SACT changes can lead to improved patient outcomes.

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Methods:

Results:

Conclusions:

Background: