^{64}Cu-SAR-bisPSMA PET/CT and SOC PSMA PET/CT in Biochemical Recurrence of Prostate Cancer: A Close-Up of the Phase II COBRA Trial

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Background: ^{64}Cu-SAR-bisPSMA has demonstrated 2-3x higher tumor uptake, prolonged retention, and detection of additional PC lesions compared to approved standard of care (SOC) PSMA agents. This multi-center, single-arm, non-randomized Phase I/II study assessed the safety and ability of ^{64}Cu-SAR-bisPSMA positron emission tomography/computed tomography (PET/CT) to detect lesions in patients with biochemical recurrence (BCR) of prostate cancer (PC) and negative or equivocal SOC imaging following definitive therapy. It also compared lesion detection against follow-up SOC PSMA PET/CT (NCT05249127). Overall results have been reported elsewhere.

Methods: Participants underwent ^{64}Cu-SAR-bisPSMA PET/CT (200 MBq) on Day 0 (1-4h post-dose) and Day 1 (24±6h post-dose). ^{64}Cu-SAR-bisPSMA scans were interpreted by 3 blinded central readers, and the findings were verified by histopathology, conventional imaging modalities that are routinely used in the diagnosis and staging of PC, and prostate-specific antigen (PSA) levels post-focal therapy during the follow-up period. The maximum follow-up period for each participant was 180 days. A subset of participants underwent follow-up SOC PSMA PET/CT with either ^{68}Ga-PSMA-11 or ^{18}F-DCFPyL (interpreted by 2 blinded central readers independent of the ^{64}Cu-SAR-bisPSMA PET readers). Here, we examine the subset of participants who received SOC PSMA PET/CT as part of their follow-up.

Results: Of the 50 participants that received ^{64}Cu-SAR-bisPSMA and had Day 0 and Day 1 scans, 20 underwent follow-up SOC PSMA PET/CT (13 with ^{68}Ga-PSMA-11 and 7 with ^{18}F-DCFPyL) a median of 73.5 days (range, 29-180) after the Day 0 ^{64}Cu-SAR-bisPSMA PET/CT. ^{64}Cu-SAR-bisPSMA identified more lesions (average sum of lesions 26.3 and 52.6 on Day 0 and Day 1 respectively, vs. 20) and higher participant-level PET-positivity (70% and 90% on Day 0 and Day 1 respectively, vs. 60%) on both days compared to SOC PSMA PET/CT.

Conclusion: Results from this subset of participants who underwent follow-up SOC PSMA PET/CT after their ^{64}Cu-SAR-bisPSMA imaging indicate that ^{64}Cu-SAR-bisPSMA is able to identify lesions from 29 days to more than 6 months earlier than SOC PSMA agents. These findings have important clinical implications as accurate staging and early identification of lesions in BCR patients can inform different treatment pathways.

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Conflicts of Interest: LN; Clarity Pharmaceuticals. NS; Astellas, Dendreon, Janssen, Bayer, Myriad, MDxHealth, Tolmar, Moivant, Pfizer, emdSerono, AstraZeneca, Merck, Genentech, Pfizer, Urogen, Guardant, Myovant, Abbvie, Amgen, Bristol Myers Squibb, Boston Scientific, Exact Imaging, FerGene, Foundation Medicine, Invitae, Nymox, Propella, Sanofi Genzyme, Pacific Edge, Cold Genes, Genesis Care, Alessa, Arquer, Asieris, Clarity, Clovis, Genentech, Ferring, ImmunityBio, Incyte, Lantheus, Lilly, Minomic, Nonagen, Novartis, Photocure, PlatformQ, Profound, Promaxo, Protara, Specialty Networks, Telix, FIZE, Accord, ANTEV, Bioprotec, Aura Biosciences, CG Oncology, Palette, Preview, Sumitomo