

Comparison of ¹⁸F-PSMA-1007 with ¹⁸F-Choline PET/CT in Prostate Cancer Recurrence, using Quantitative Biomarkers

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Background

The aim of this study is to compare morphological and quantitative features of ¹⁸F-PSMA-1007 and ¹⁸F-Choline PET/CT in prostate cancer (PCa) patients with biochemical recurrence (BCR) enrolled in the BIO-CT-001 trial.

Materials & Methods

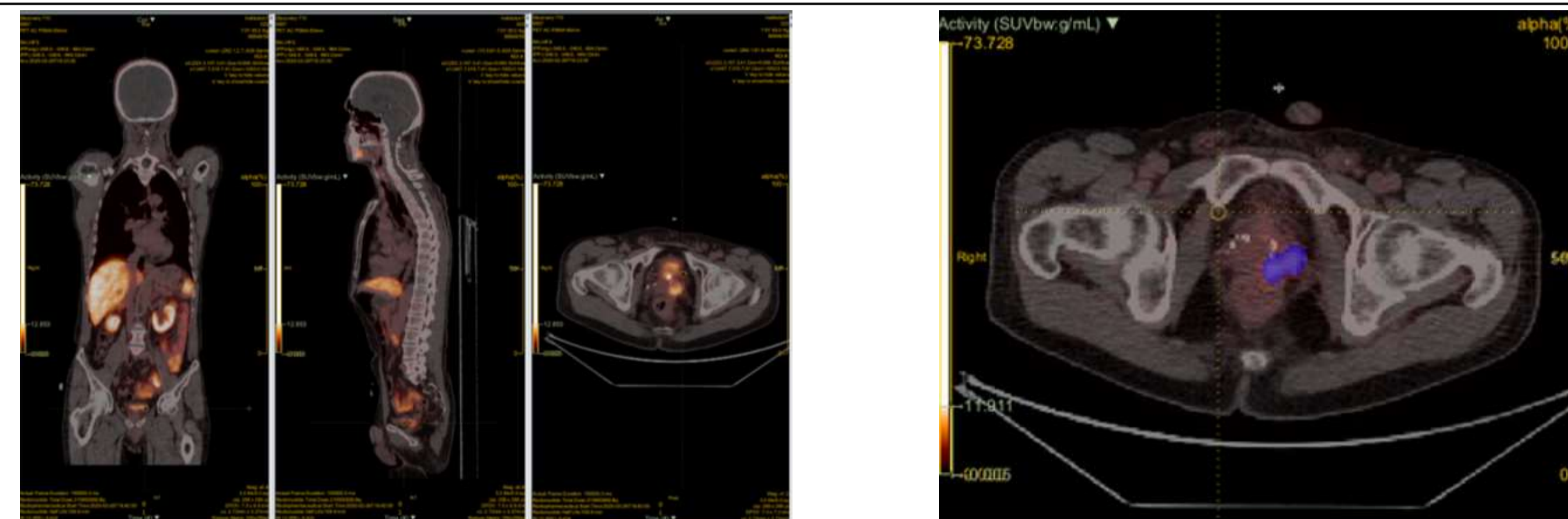
- **106 patients** who had undergone primary treatment for PCa.
- One ¹⁸F-PSMA-1007 and one ¹⁸F-Choline PET/CT examination within 10 days.
- LifeX software to extract: **SUVmax**, **SUVmean**, total volume of the lesion (**PSMA-TV/FCH-TV**) the total lesion uptake (**TL-PSMA/TL-FCH**) for all identified metastatic lesions.

Results

- **286 lesions** were identified of which 49.0% were lymph node metastases (LN), 41.2% were bone metastases (BN) and 9.8% involved locoregional (PR) recurrences of PCa.
- The median SUVmax value was significantly higher for PSMA compared to Choline for all lesions.
- Statistically significant differences in median SUVmean, PSMA/FCH-TV and TL-PSMA/FCH between the two radiotracers.

Conclusion

Our analysis demonstrated the **improved performance of ¹⁸F-PSMA-1007 compared to ¹⁸F-Choline** for calculating quantitative features in all metastatic lesions in PCa patients with BCR.



Radiotracer	SUVmean (gr/ml)	SUVmax (gr/ml)	PSMA/FCH-TV (cm ³)	TL-PSMA/FCH (cm ³ *gr/ml)
¹⁸ F-PSMA-1007	4.29 (1.01-17.38)	8.26 (1.5-63.31)	7.31 (0.34-435.27)	1.97 (0.17-48.07)
¹⁸ F-Choline	2.92 (0.23-11.96)	4.99 (0.51-34.26)	4.37 (0.07-560.3)	1.53 (0.17-94.37)
p-value	p<0.001	p<0.001	p<0.001	p<0.001

