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68Ga-DOTATATE/18F-FDG dual PET: Utility of the NETPET score in management of G2-3 WD NENs

Jose E. Nunez¹, David L. Chan², Roshini Kulanthaivelu³, Vanessa Murad³, Simron Singh¹, Ur Metser³.

¹Sunnybrook Health Sciences Centre; ²University of Sydney; ³University Health Network.

BACKGROUND

The clinical heterogeneity of G2 and G3 well-differentiated GEP-NENs make it difficult to choose an effective treatment plan, highlighting the need of molecular imaging in the treatment of NETs patients. It has been suggested that a dual-tracer 68Ga-DOTATATE/18F-FDG grading scoring system could be a useful imaging biomarker. This pilot study aims to validate the prior observation from Chan et al. (BJC 2022) of variability in NETPET scores in G2-G3 WD GEP NENs and assess the impact of dual tracer PET on management.

METHODS

Patients with G2-G3 WD GEPNENs referred for 68Ga-DOTATATE PET at the University Health Network were enrolled to this prospective, single-arm study for performance of 18F-FDG PET. 40 patients were planned to receive 18F-FDG PET with a pre-FDG and post-FDG management plan. Primary outcome was to describe the percentage of patients in whom management was changed as a result of the FDG PET. Clinical follow-up followed the routine clinical schedule determined by the treating physician. Specific changes in management (e.g. SSA to chemotherapy or vice versa) and change in treatment modality (e.g. systemic to PRRT or vice versa) were reported.

RESULTS

Forty patients were enrolled (9 small bowel, 17 pancreas, 11 other GI primaries and 3 unknown). The median age was 62 (23-88). 40% of patients had Grade 3 WD NEN. The median Ki-67 index was 12%. Patients with NETPET scores P0, P1, P2, P3, P4 and P5 represented 5%, 12.5%, 62.5%, 5%, 10% and 5% of the overall population respectively. Specific changes in management represented 60% of cases. Change in treatment modality represented 47.5% of cases. The change of treatment modality within P0, P1, P2, P3, P4 and P5 groups was 50%, 80%, 40%, 50%, 50% and 50% respectively.

CONCLUSIONS

The addition of FDG PET to DOTATATE PET resulted in treatment modality change in 47.5% of patients. These descriptive findings are hypothesis generating and will help inform design of a future prospective trial to assess the impact of dual tracer PET directed management on patient outcomes.

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