C-36

PFS and OS After Salvage Peptide Receptor Radionuclide Therapy (PRRT) with 177-Lu[Dota^0,Tyr^3]octreotate in Patients with GastroEnteroPancreatic or Bronchial NeuroEndocrine Tumours (GEP-NETs) – The Rotterdam Cohort

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BACKGROUND: PRRT with 177-Lu[Dota^0,Tyr^3]octreotate is an effective treatment option for patients with metastasized and/or inoperable GEP-NETs. We evaluated the efficacy and toxicity of salvage PRRT in a large group of GEP-NET patients with long-term follow-up.

METHODS: Patients with GEP-NETs were selected for re-(re)-treatment if they had benefited from initial PRRT and showed renewed progression. Benefit was defined as SD+PR+CR (RECIST 1.1). Salvage PRRT took place between 2003 - 2015, with follow-up until end 2016. The intended dose for re-(re)-treatment was 14.8 GBq (400mCi) divided over two administrations. Total intended cumulative dose (cumdose) per patient for the initial treatment (I-PRRT) was 29.6 GBq (800mCi), for re-treatment (R-PRRT) 44.4 GBq (1200mCi) and for re-re-treatment (RR-PRRT) 59.2 GBq (1600mCi).

RESULTS: 181 and 14 patients were re-(re)-treated, respectively. Median follow-up was 91 months. Patients were re-treated with a median cumdose of 14.9 GBq (range 3.7-16.2 GBq) and re-re-treated with a median cumdose of 15.0 GBq (range 3.8-15.3GBq). After I-PRRT (n=181) the median PFS was 33 (95% CI [30.4,

35.6]) months. Median PFS after R-PRRT was 14 (n=133; 95% CI [11.7, 16.3]) months and OS was 26 (n=181; 95% CI [18.9, 33.1]) months. Median PFS and OS after RR-PRRT were 14 (n=12; 95% CI [9.8, 18.2]) months and 29 (n=14; 95% CI [4.6, 53.4]) months. Overall the OS was 77 months (95% CI [63.1, 91.0]) months. Grade III-IV bone-marrow toxicity was 10.0%, 7.7% and 7.1% after I-PRRT, R-PRRT and RR-PRRT, respectively. Severe long-term haematological toxicity includes 2 cases of acute myeloid leukaemia (AML) and 1 myelodysplastic syndrome (MDS), a total of 1.7% since first PRRT cycle. No PRRT-related Grade III-IV nephrotoxicity was observed.

CONCLUSION: Salvage PRRT with 177-Lu[Dota^{0},Tyr^{3}]octreotate is a feasible treatment option in patients with a good response after I-PRRT. The AML+MDS prevalence is not higher than previously reported. Renal toxicity grade III-IV was not observed.