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ABSTRACT BOOK

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Clinical

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PRRT Retreatments: Renal Function Evaluation

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Introduction: Peptide receptor radionuclide therapy (PRRT) is a well-established option for patients with metastatic and/or inoperable neuroendrocine neoplasms (NEN). Nevertheless, due to the mainly renal excretion of the tracer, renal toxicity is the most restrictive factor over time. We retrospectively evaluated the renal toxicity of PRRT salvage therapy in patients affected by NEN.

Methods: 10 patients (7 male and 3 female, mean age 56,7y, range 43-75) with NEN (4 pancreatic, 2 ileal, 2 of unknown origin, 1 meningioma and 1 pulmonary) with progressive disease, who had benefit from previous PRRT (at least stable disease, according to RECIST 1.1 criteria), were selected for re-treatment. 8/10 suffered from comorbidities (6 hypertension, 4 diabetes, 2 dyslipidemia). The cohort underwent at least two PRRT (range 2-4) between 01.02.2006 and 01.10.2017 with high activities of 90Y-, 177Lu- and/or 111In- labelled peptides. Totally were administered 83 cycles (41, 21, 21 with 90-Yttrium, 177-Lutetium and 111-Indium, respectively) and the activity range for each cycle was 0,93-7,4 GBq (1,11-2,405 GBq, 1,75-7,4 GBq, 0,93-7,4 GBq for 90Y, 177Lu, 111In, respectively). Intravenous infusion of amino acids was administered at each cycle of PRRT in order to reduce tubular peptide's uptake, minimizing renal impairment. Renal function was assessed trough 99mTc-DTPA GFR measurements. We compared GFR% variations after each PRRT and for each radiopharmaceutical. GFR values before the beginning and after last PRRT were also compared.

Results: Baseline GFR ranged from 50 to 113 ml/min (mean value 82,9 ml/min) and from 40 to 152 ml/min at last follow-up (mean value 72,9 ml/min). According to Cyto-toxic criteria (CTC), at baseline 4/10 patients had grade 1 and 6/10 had grade 2 nephrotoxicity. At last follow-up, we did not record any case of severe nephrotoxicity (grade 3-4) otherwise 9/10 had grade 2 (moderate nephrotoxicity). At baseline, according to chronic kidney disease classification (CKD), 5/10 had normal GFR value, 3/10 had stage 2 and 2/10 had stage 3. At last follow-up, 3/10 had still normal GFR value, 2/10 had stage 2, 5/10 had stage 3 toxicity. In our cohort, we did not record any grade 4 (severe impairment) or 5 toxicity (renal failure). No statistically significant difference of GFR before and after treatments was found; no statistically significant difference between GFR% variations before and after treatments using different radiopharmaceuticals was found. Interestingly, renal toxicity trend seems to reduce with progressive PRRT.

Conclusion: PRRT salvage therapy is a tolerable and feasible option in patients with a good response after initial therapy. The occurrence of renal toxicity in re-challenge patients is not higher than previously reported.