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Peptide Receptor Radionuclide Therapy (PRRT) in Advanced Pheochromocytoma and Paraganglioma From a Single Institution Experience

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BACKGROUND: Pheochromocytoma and paraganglioma (PPGL) are rare tumors with heterogenous prognosis and hence lack of treatment guidelines and limited therapy options. We present our experience with peptide receptor radionuclide therapy (PRRT) in advanced PPGL.

METHODS: Six patients (1 woman and 5 men, mean±SD: 59.7±11.7-year-old) with progressive, somatostatin receptor (SSR)-expressing PPGL (4 paraganglioma, 2 pheochromocytoma) were treated with 177Lu-DOTATATE. 68Ga-DOTATATE PET was obtained at baseline, after 2 cycles, and post-treatment. Follow-up imaging occurred every 3 months. Laboratory tests were performed before each cycle and every 2 months at follow-up. Toxicity was determined using NCI CTCAE V5.0.

RESULTS: All patients received 4 cycles of each 7400 MBq 177Lu-DOTATATE. 1/6 (16.7%) patient had a one-time reduced dose of 3700 MBq 177Lu-DOTATATE at third cycle due to grade 3 thrombocytopenia which resolved before the fourth cycle. After the first cycle, neutropenia and lymphopenia grade 3 was seen in 1/6 (16.7%) and 1/6 (16.7%) patients, respectively, and resolved in both cases after 1 month. 2/6 (33.3%) patients showed lymphopenia grade 3: one patient 1 month after the last PRRT cycle which persisted 5 months later while the other patient developed lymphopenia 5 months after last cycle, which might be related to newly initiated radiation therapy, and resolved 12 months later. No other grade 3 toxicity was seen, especially no liver or renal toxicity. Progression-free survival (PFS) was 83%, 58%, and 39% at 11-month, 15-month, and 18-month follow-up, respectively. The objective response rate (ORR) (complete and partial response)

was 40% at post-treatment evaluation. Disease control (DC) (complete, partial response, and stable disease) was 80% at 11-month follow-up.

CONCLUSION: Our preliminary data show overall good results for patients with progressive PPGL treated with PRRT: high DC of 80%, ORR of 33% and PFS of 83% at 11-month follow-up. Hematotoxicity included grade 3 transient neutropenia and lymphopenia (33.3%).

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