

Clinical Investigation

Effects of Therapy with [^{177}Lu -DOTA⁰, Tyr³]Octreotate in Patients with Paraganglioma, Meningioma, Small Cell Lung Carcinoma, and Melanoma

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Therapy using the radiolabeled somatostatin analog [^{177}Lu -DOTA⁰, Tyr³]octreotate (^{177}Lu -octreotate) (DOTA is 1,4,7,10-tetraazacyclododecane-*N,N',N'',N'''*-tetraacetic acid) has been used primarily in gastroenteropancreatic neuroendocrine tumors. Here we present the effects of this therapy in a small number of patients with metastasized or inoperable paragangliomas, meningiomas, small cell lung carcinomas (SCLCs), and melanomas. **Methods:** Twelve patients with paraganglioma, 5 with meningioma, 3 with SCLC, and 2 with eye melanoma were treated. Three meningiomas were very large and exophytic and all standard treatments had failed. Patients with melanoma had rapidly progressive disease (PD). The intended cumulative dose of ^{177}Lu -octreotate was 22.2–29.6 GBq. Effects of the treatment on tumor size were evaluated using the Southwest Oncology Group criteria. **Results:** Two of 4 patients with progressive paraganglioma had tumor regression and 1 had stable disease (SD). Of 5 patients with stable paraganglioma, 2 had SD, 2 had PD, and in 1 patient treatment outcome could not be determined. Paraganglioma was stable in 3 patients in whom the disease status at the beginning of therapy was unknown. One of 4 patients with progressive meningioma had SD and 3 patients had PD. One patient with stable meningioma at the beginning of therapy had SD. All patients with SCLC or melanoma died within 5 mo after starting therapy because of tumor progression. Although not statistically significant, a positive trend was found between high uptake on pretherapy somatostatin receptor scintigraphy and treatment outcome. **Conclusion:** ^{177}Lu -Octreotate can be effective in patients with paraganglioma and meningioma. Response rates are lower than those in patients with gastroenteropancreatic neuroendocrine tumors. Most meningiomas were very large. Further studies are needed to confirm the treatment outcome because of the limited number of patients. ^{177}Lu -Octreotate did not have antitumor effects in patients with small lung carcinoma and melanoma.

Key Words: ^{177}Lu -octreotate • paraganglioma • meningioma • small cell lung carcinoma • melanoma