

Peptide receptor radionuclide therapy

In aggressive pituitary tumours (PT) showing local invasion or growth/recurrence despite multimodal conventional treatment, temozolomide (TMZ) is considered a further therapeutic option, while little data is available on peptide receptor radionuclide therapy (PRRT). We analysed PRRT effectiveness, safety and long-term outcome in three patients with aggressive PT, also reviewing the current literature. Patient #1 (F, giant prolactinoma) received 5 cycles (total dose 37 GBq) of ¹¹¹In-DTPA-octreotide over 23 months, after unsuccessful surgery and long-term dopamine-agonist treatment. Patient #2 (M, giant prolactinoma) underwent 2 cycles (12.6 GBq) of ¹⁷⁷Lu-DOTATOC after multiple surgeries, radiosurgery and TMZ. In Patient #3 (F, non-functioning PT), five cycles (29.8 GBq) of ¹⁷⁷Lu-DOTATOC followed five surgeries, radiotherapy and TMZ. Eleven more cases of PRRT-treated aggressive PT emerged from literature. Patient #1 showed tumor shrinkage and visual/neurological amelioration over eight-year follow-up, while the other PTs continued to grow causing blindness and neuro-cognitive disorders (patient #2) or monolateral amaurosis (patient #3). No adverse effects were reported. Including the patients from literature, 4/13 presented tumor shrinkage and clinical/biochemical improvement after PRRT. Response did not correlate with patients' gender or age, neither with used radionuclide/peptide, but PRRT failure was significantly associated with previous TMZ treatment. Overall, adverse effects occurred only in 2 patients. PRRT was successful in 1/3 of patients with aggressive PT, and in 4/5 of those not previously treated with TMZ, representing a safe option after unsuccessful multimodal treatment. However, at present, considering the few data, PRRT should be considered only in an experimental setting ¹⁾.

Schneider JR, Shatzkes DR, Scharf SC, Tham TM, Kulason KO, Buteau FA, Del Prete M, Chakraborty S, Anderson TA, Asiry S, Beauregard JM, Langer DJ, Costantino PD, Boockvar JA. Neurological and Neuropathological Changes After ¹⁷⁷Lu-Octreotate [Peptide Receptor Radionuclide Therapy](#) of Refractory Esthesioneuroblastoma. *Oper Neurosurg* (Hagerstown). 2018 Mar 14. doi: 10.1093/ons/opy028. [Epub ahead of print] PubMed PMID: 29554305.

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Giuffrida G, Ferrau F, Laudicella R, Cotta OR, Messina E, Granata F, Angileri FF, Vento A, Alibrandi A, Baldari S, Cannavo S. Peptide receptor radionuclide therapy for aggressive pituitary tumors: a monocentric experience. *Endocr Connect*. 2019 Apr 1. pii: EC-19-0065.R1. doi: 10.1530/EC-19-0065. [Epub ahead of print] PubMed PMID: 30939449.

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