Endocrine follow-up of children with a history of brain tumour. Data from our large cohort at Necker University Hospital, Paris, 2010-2015

Laura Gabriela González Briceño1, Dinane Samara-Boustantii2, Jacques Beltrand1,3,4, Jacques Grill5, Stéphanie Puget5, Christelle Dufour5, Christian Sainte-Rose6, Claire Alapetite6, Graziella Pinto1,2, Philippe Touraine1,2, Dominique Valteau-Couanet6, Dulanjalee Kariyawasam7, Isabelle Aerts8, Kevin Beccaria9, Marie Bourgeois10, Thomas Roujeau10, Thomas Blauwblomme6, Federico Di Rocco11, Caroline Thalassinos12, Michel Zerah12, Christian Pauwels11, Laurence Brugière5, Sylvé James5, Kanetee Busiah13, Albane Simon11, Franck Bourdeaut6, Stéphanie Bollé1, Brice Fresneau1, Jean Michon1, Léa Guerrini-Rousseau1, Daniel Orbach1, François Düz2, Michel Polak1,3


Supported in part by

Background: Brain tumours are the most frequent solid tumours during childhood. Endocrine secondary effects due to the tumour or treatment received are frequent.

Objective: To describe the cohort of patients with primary brain tumours, followed in our Paediatric Endocrinology Unit at Hôpital Universitaire Necker–Enfants Malades, Paris, France between 2010-2015, to assess current practice and propose recommendations.

Methods: retrospective and prospective observational study, data collection from medical records of patients seen at least once between 2010-2015. Exclusion criteria: pituitary adenoma, untreated asymptomatic gliomas (NF1 context), insufficient data, or refusal to participate.

Results: 225 patients were included, 49.3% females
- Mean age at diagnosis: 7.0±3.9 years.
- Age at last visit: 14.7±4.6 years (range: 1.3-25.2).
- Mean follow-up: 6.0±3.7 years.

Main tumour subtypes: medulloblastoma (36.9%), craniopharyngioma (28.9%), glioma (20.9%).

Patients were divided into 2 groups:
- Suprasellar (SS: 48.9%), involving the sellar or suprasellar region, hypothalamus or optic pathways.
- Non-suprasellar (NSS: 51.1%), mainly involving the posterior fossa.

Treatment:
- surgery (83.6% in SS, 94.8% in NSS), and/or radiotherapy (58.2% in SS, 95.7% in NSS), and/or chemotherapy (35.5% in SS, 75.7% in NSS).

Initial height was similar between both groups (SS: -0.5±1.6 SDS vs NSS: -0.2±1.2 SDS).

GH treatment was started only in patients with GHD
- SS: after a median of 1.1 years from end of treatment (0.2-11.1).
- NSS: after a median of 2.0 years (0.6-9.8).

Final height was available for 92 patients, with a significant difference between SS: -0.3±1.4 SD and NSS: -0.9±1.4 SD, p<0.0001.

Conclusion: This large cohort shows a high incidence of early endocrine secondary effects due to tumours and their treatment. An endocrine follow-up should be mandatory for all patients with a history of brain tumour, including nutritional evaluation.