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

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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.

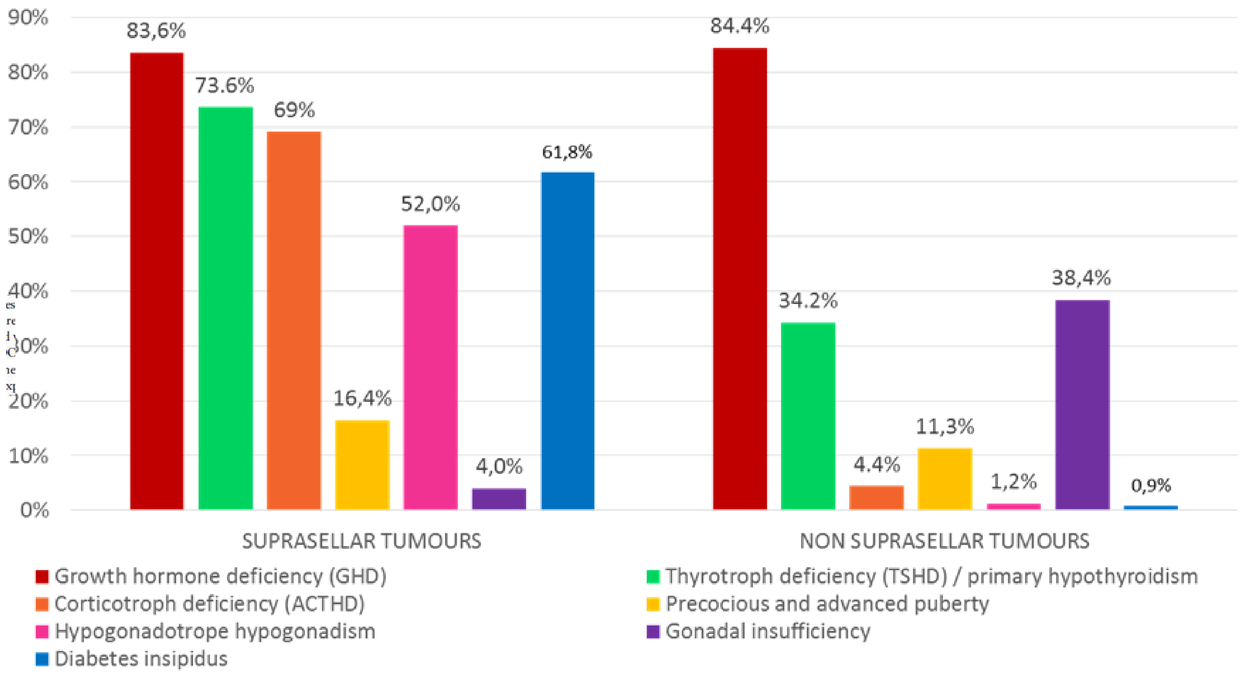
Results: 225 patients were included, 49.3% females
- Mean age at diagnosis: 7.0±3.9 years.
- Age at last visit: 14.7±4.6 years (range: 1.3-25.2)
- Mean follow-up: 6.0±3.7 years.

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).

Endocrine effects observed at last evaluation in patients with SS and NSS tumours



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

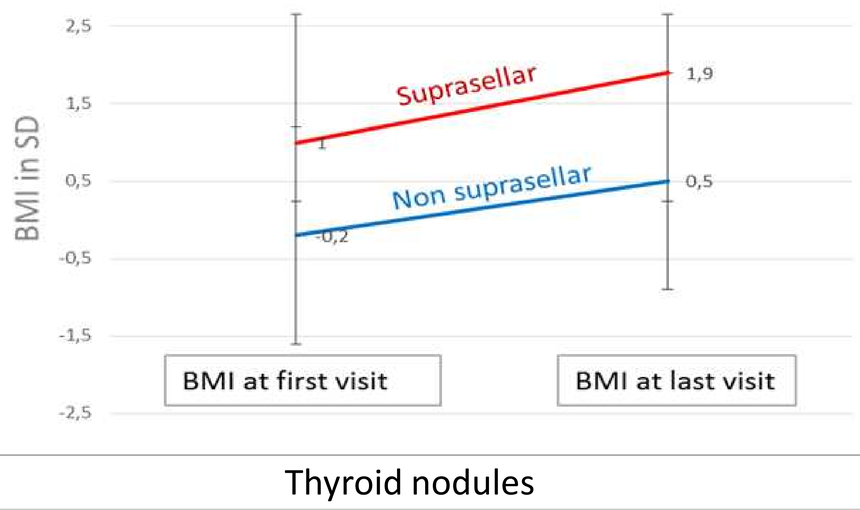
GH treatment was started only in patients with GHD
- SS : after a median of 1.1 years from end of treatment (0.2-11.1)
- NSS : after a median of 2.0 years (0.6-9.8).

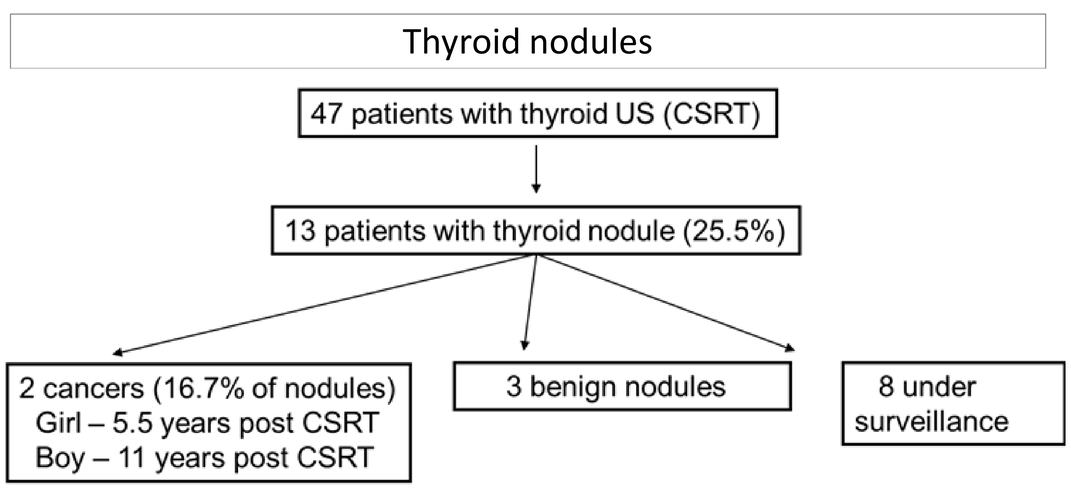
Final height was available for 92 patients, with a significant difference between SS: -0.3±1.4 SD and NSS: -0.9±1.4 SD, p<0.0001.

NSS had a significantly lower final height compared to initial height (p<0.0001) and to target height (-1.0 SDS p<0.0001), attributable to cranio-spinal radiotherapy (CSRT).

Initial BMI was higher in SS (+1.1±2.0 SD, 20% obese) than in NSS (-0.2±1.3 SDS, 5.2% obese), p<0.0001.

Significant BMI increase at final visit in both groups (p=0.0001).
Obesity was present in 44.5% of SS and 15.5% of NSS at last visit.





Conclusions: 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.

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