Prevalence of Self-Reported Endocrine Comorbidities in Hypothalamic Hamartoma Patients: Data from the Hope for Hypothalamic Hamartomas Survey

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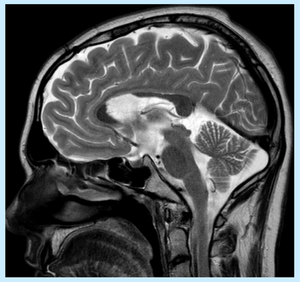
BACKGROUND

- Hypothalamic hamartoma (HH) are rare, congenital, slow growing benign mass lesions in the 3rd ventricle, tuber cinereum and mammillary bodies that can be asymptomatic or associated with treatment-resistant epilepsy.
- Central precocious puberty (CPP) is the main reported endocrine comorbidity (30-80% of cases) (1).
- Other endocrine comorbidities have also been described, but studies reporting its prevalence have been inconsistent because of the rarity of the disease, variability of follow-up, testing and hormonal cut-points used, and lack of long-term endocrinologic assessment.
- Ng *et al.* (2) reported from our institution (*Barrow Neurological Institute, Phoenix, AZ*) the following pre-operative endocrine comorbidities: CPP 40 patients (32.5%), hypothyroidism 3 (2.4%), GH deficiency 1 (0.8%), hypothyroidism and adrenal insufficiency 1 (0.8%), and panhypopituitarism 1 (0.8%).
- Freeman *et al.* (3) reported from their institution (*Royal Children's Hospital, Parkville, Victoria, Australia*) the following pre-operative endocrine comorbidities: CPP 13 patients (45%), hypothyroidism 2 (6.9%), GH deficiency 9 (31.0%), adrenal insufficiency 5 (17.2%).
- Conde Blanco *et al.* (4) reported from their institution (*Hospital Clinic de Barcelona Spain*) that out of 8 adult HH patients with epilepsy pre-operatively, 2 (25.0%) and 1 (12.5%) patients had central hypothyroidism and hypothalamic obesity, respectively.

EXAMPLE OF A CASE OF HH WITH ENDOCRINOPATHIES AND POST-OPERATIVE MRI

- 22 yo male with HH that underwent tumor biopsy (endonasal approach in 1997) followed by 3 brain surgeries (transcallosal approach in 2002, endoscopic endonasal approach in 2008 and orbitozygomatic approach in 2013).
- Normal endocrine function prior to surgeries.
- After his 3rd surgery in 2013 at the age of 16, the patient developed central adrenal insufficiency, central hypothyroidism, central hypogonadism and GH deficiency.



AIMS

- To evaluate the self-reported prevalence of demographics and endocrine comorbidities in a large cohort of HH patients.

METHODOLOGY

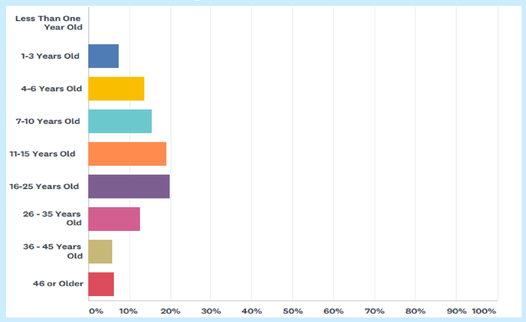
- Hope for HHs is a volunteer-based, nonprofit organization founded by parents and families of children with HH.
- Hope for HHs initiated an international survey after concerns were raised that there have been multiple ongoing comorbidities (including endocrine) that were continually under-recognized and under-treated in many patients.
- The survey was translated into multiple languages, and distributed electronically to families of children and adults with HH that were able to answer the questions independently (or with caregiver support) in the Hope for HHs database.

RESULTS

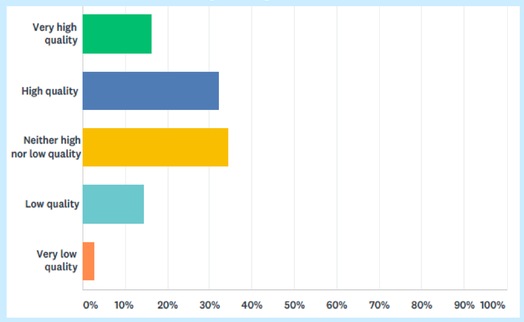
Patient characteristics	N = 257
Gender (males/females)	132/125 (51.4%/48.6%)
Age distribution	4 to 35 years
Country of residence when survey performed - United States - Russia - United Kingdom - Australia - Canada, Germany, and Kazakhstan - Ukraine - Portugal - Belgium, Belarus, France, Ireland, Italy, Norway, and New Zealand - Antigua, Argentina, Israel, Iran, Kyrgyzstan, Morocco, and Mexico, Malaysia, Netherland, Nepal, Pakistan, Slovakia, Turkey	 111 (43.2%) 52 (20.2%) 33 (12.8%) 11 (4.3%) 5 (2.0%) 4 (1.6%) 3 (1.2%) 2 (0.8%) 1 (0.4%)
Number of patients that underwent surgery and/or radiation treatment(s)	163 (63.4%)
Number of patients currently seizure-free	81 (49.7%)
Number of patients seizure-free at anytime after treatment	43 (52.4%)

RESULTS

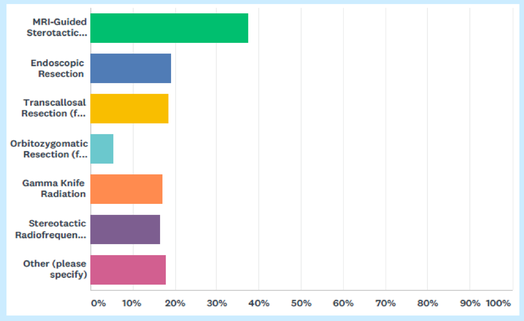
Age distribution



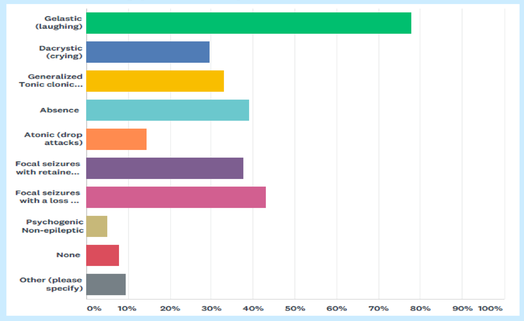
Quality of life



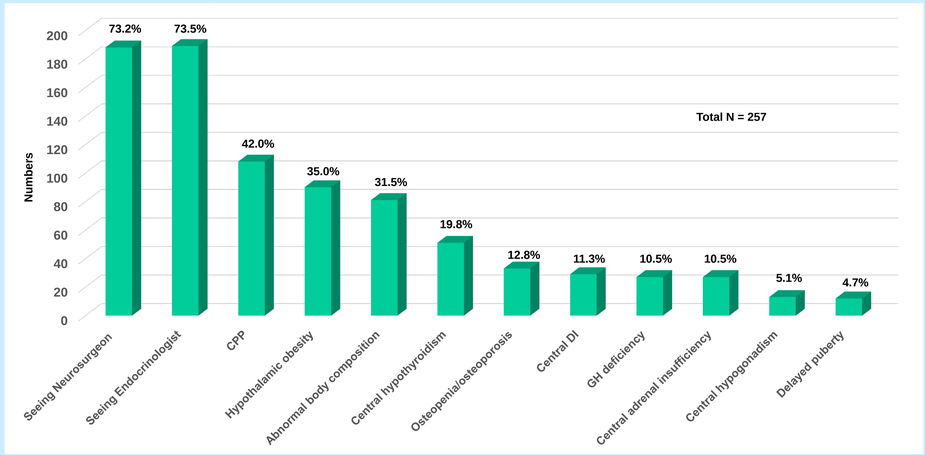
Treatment modalities utilized



Types of reported seizures



Specialty follow-up and prevalence of endocrine comorbidities



DISCUSSION

This international survey initiated by Hope of HHs suggests that over a quarter of HH patients (26.5%) were not seeing and evaluated by a Neurosurgeon and an Endocrinologist. In contrast to previous studies reporting low prevalence of pre-operative endocrine comorbidities in HH patients (2,3), this survey demonstrated that that there is a greater prevalence of other non-CPP endocrine comorbidities than initially thought, with almost a fifth of the patients (17.1%) reporting worsened quality of life. However, this survey is limited in that it does not allow for distinction of whether these comorbidities occurred pre- or post-operatively. Nevertheless, because endocrine comorbidities are often clinically insidious in onset, these data indicate the importance of HH patients be evaluated by Endocrinologists and undergo long-term follow-up to detect endocrine comorbidities early and optimally treat these patients.

References:

1. Jung H, et al. *J Clin Endocrinol Metab*. 2003;88:4590-4595.
2. Ng YT, et al. *Epilepsia.* 2006;47:1192-1202.
3. Freeman JL, et al. *Epileptic Disord*. 2003;5:239-247.
4. Conde Blanco E, et al. *Brain Behav.* 2019 Nov;9(11):e01412.

Disclosures:
The authors have nothing to disclose.

Acknowledgments:
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