Pituitary neuroendocrine tumor epidemiology

- Methylation and gene expression patterns in adamantinomatous craniopharyngioma highlight a panel of genes associated with disease progression-free survival
- Estimating diagnostic delay in patients with pituitary adenomas in Sweden: a cross-sectional study
- Treatments for MEN1-associated endocrine tumours: three systematic reviews and a meta-analysis
- Revised European Society of Endocrinology Clinical Practice Guideline for the management of aggressive pituitary tumours and pituitary carcinomas
- Genetic association of AIP gene variant c.910C>T with pituitary adenomaacromegaly patients of Pakistani origin
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- Headache as an indication for surgery in non-functioning pituitary adenoma and Rathke's cleft cyst: A systematic review

In a large, population-based study, female sex, older maternal age, higher maternal education, and Hispanic ethnicity and Black race compared to non-Hispanic White race, were associated with an increased risk of Pituitary neuroendocrine tumor in children and young adult [1)]

Aggressive pituitary neuroendocrine tumors (APT) account for 10% of pituitary tumors.

The most common incidentally detected sellar region-suprasellar region (SSR) masses are pituitary neuroendocrine tumors, followed by craniopharyngioma, rathke's cleft cyst, hypophysitis, and meningioma.

Longer lifespan and newer imaging protocols have led to more older adults being diagnosed with pituitary neuroendocrine tumors.

The overall prevalence in the general US population is estimated at 16.7% [2)].

Incidence estimates for pituitary neuroendocrine tumors vary widely, suggesting the effects of numerous risk factors or varying levels of tumor surveillance. McDowell et al., studied the epidemiology of pituitary neuroendocrine tumors using 2004-2007 data collected by 17 Surveillance, Epidemiology, and End Results Programs in the United States (N = 8,276). We observed that incidence rates generally increased with age and were higher in females in early life and higher in males in later life. Males are diagnosed with larger tumors on average than females. Diagnosis may be delayed for males, giving tumors a chance to grow larger before clinical detection. We also observed that American Blacks have higher incidence rates for pituitary neuroendocrine tumors compared with other ethnic groups. There are several potential explanations for this finding with some evidence that at least part of the effect may be due to differential diagnosis between races [3)].

Malta

Epidemiological data is important to correctly quantify the extent of disease and needed health care resources. The aim of the study was to establish the prevalence and incidence of pituitary neuroendocrine tumors (PAs) in the same well defined population, with in-depth analysis of the various subtypes. The design involved a retrospective cross-sectional analysis of PA patients diagnosed prior to 31 July 2011 for prevalence estimates and those diagnosed between July 2000 and July 2011 for incidence estimation. A thorough search for patients with PAs was carried out in central hospital registries including outpatients departments, surgical registries, radiological department and specialty clinic databases. Prevalence rates/100,000 and Standardised incidence ratios (SIR)/100,000/year were worked out. The respective prevalence rates and SIR for PAs overall were 75.7/100,000, and 4.27/100,000/year, for Prolactinomas 35.0/100,000 and 2.05/100,000/year, for nonfunctioning PA 25.9/100,000 and 1.79/100,000/year and for GH-secreting PAs 12.5/100,000 and 0.31/100,000/year. The overall prevalence for macroadenomas was 32.8/100,000 and SIR was 1.49/100,000/year. The prevalence rate in males for PAs overall was 46.3/100,000 and SIR was 2.08/100,000/year and in females 104.8/100,000 and SIR was 6.58/100,000/year. Females had a lower proportion of macroadenomas than males (29.5 vs. 75.0%; $P < 0.001$) and macroadenomas tended to present at a later age compared to microadenomas (48 vs. 34.5; $P < 0.001$). The highest SIR was reached in the 30-39 age group at 7.42/100,000/year. Our data confirm the considerable disease burden that PAs bear on health care resources. Males and females have similar prevalence and SIR rates for macroadenomas but there is a significant increase in SIR in females of child bearing age compared to males. These observations may have important implications in terms of the economic burden and need for early intervention [4)].

Saudi Arabia

Data on pituitary neuroendocrine tumor (PA) prevalence in Saudi Arabia were reviewed for the period January 2008 to December 2015.

Of 537 patients; 249 subjects (46.4%), 70 (28.1%) males and 179 (71.9%) females, were diagnosed to have PA with mean age 36.3 (14.1) years. Microadenoma and macroadenoma were seen in 171 (69%) and 78 (31%) subjects, respectively. Microadenomas were more prevalent than macroadenomas (68.7% vs. 31.3%). Microadenomas were significantly more prevalent in females, 131 (73.2 %) vs. 40 (57.1%) whereas macroadenomas were significantly more prevalent in males, 30 (42.9%) vs. 48 (26.8%) ($P < .001$ for both comparisons). Patients with microadenomas were significantly younger than patients with macroadenomas ($P < .0001$). Advanced age was significantly associated with a larger PA size ($r=0.39$, $P < .0002$). Three types of hyperfunctioning PA were seen: prolactinoma, somatotroph adenoma, and corticotroph adenoma. Five types of hypofunctioning PA were seen: panhypopituitarism, secondary hypogonadism, growth hormone deficiency, central hypothroidism and central adrenal insufficiency. Non-functioning PA were within normal laboratory hormonal values in 2% of cases.

The study showed that the prevalence of PA was greater than previously reported. This increased prevalence may have important implications when prioritizing funding for research and treatment of PA [5)].

Iran

278 patients with PAs who underwent surgical interventions were evaluated. Most of the patients were aged 40-50 years with an average of 41 ± 14. The most prominent complaint was pressure effect, which was detected in 153 cases (55.2%). At the second place, hormonal disorders were observed in 125 cases (44.8%). Type of pituitary tumors were: Prolactinomas (29.1%), growth hormone (GH)-producing tumors (25%), nonfunctioning PAs (28.4%), adrenocorticotropic hormone (ACTH)-producing tumors (2.1%), thyroid stimulating hormone (TSH)-producing tumors (0.7%), GH/prolactin (13.6%), GH/ACTH (0.3%), and TSH/ACTH (0.3%). Fifty-seven patients presented with recurrent adenomas. Pituitary apoplexy was found in 11 patients. One case of Sheehan syndrome was recorded among these. The correlations between clinical symptoms and patients, age and sex were not significant [6].

References

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