Idiopathic intracranial hypertension epidemiology

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The epidemiology of **Idiopathic Intracranial Hypertension (IIH)** reflects its association with specific demographic and clinical risk factors. Below are the key epidemiological features:

Incidence and Prevalence

- 1. The incidence of IIH is estimated to be **0.9 to 1.9 cases per 100,000 people** in the general population.
- 1. However, in certain high-risk groups, such as **obese women of childbearing age**, the incidence can be much higher, ranging from **12 to 20 cases per 100,000**.
- 1. IIH is predominantly seen in women, especially between the ages of **20 and 44**. In this demographic, incidence can rise to around **12 to 14 cases per 100,000**.
- 1. Obesity increases the risk of IIH significantly. In populations with **BMI > 30**, the incidence rises to around **20 per 100,000**.

2. Gender Distribution:

- 1. IIH has a strong female predominance, with women making up approximately **90% of cases**.
- The condition is particularly prevalent in **overweight or obese women**, especially those between the ages of 20 and 45. In contrast, when IIH occurs in men or children, the association with obesity is less pronounced.

3. Age Distribution:

- 1. Most cases occur in young adults, typically between the ages of **20 and 44**.
- 2. In children and older adults, IIH is less common, but cases can still occur. In children, the disease often has a different clinical presentation, with a more even gender distribution and less association with obesity.

4. Geographical Variation:

1. While data on geographic distribution are limited, obesity is a known risk factor. Therefore, regions with higher obesity rates tend to have higher incidences of IIH. Countries with increasing rates of obesity, particularly in women of reproductive age, are seeing a rise in the number of IIH cases.

5. Risk Factors in Epidemiology:

- 1. **Obesity**: The strongest modifiable risk factor for IIH is obesity. The risk increases with the severity of obesity, and weight gain often precedes the onset of IIH symptoms.
- 2. Hormonal Factors: IIH is often associated with hormonal imbalances, such as in **polycystic ovary syndrome (PCOS)**, which is common in women of childbearing age.
- 3. **Medications**: Certain medications, including **oral contraceptives**, **tetracyclines**, and **retinoids (vitamin A derivatives)**, have been associated with the development of IIH.

6. Pediatric Cases:

1. IIH is rare in children, and the female predominance seen in adults is not as prominent. Pediatric cases often present with a different clinical picture and are less frequently associated with obesity.

7. Outlook and Trends:

1. The incidence of IIH is increasing, likely due to the rising global obesity epidemic. This suggests that public health interventions aimed at addressing obesity could reduce the incidence of IIH.

Understanding the epidemiology of IIH is crucial for identifying at-risk populations and tailoring public health interventions, particularly in the context of rising obesity rates worldwide.

Idiopathic intracranial hypertension incidence is rising, with growing evidence linking it to metabolic and hormonal disturbances. Early diagnosis and treatment remain challenging ¹⁾

There is limited literature on the epidemiology of idiopathic intracranial hypertension (IIH).

It has an overall incidence of 1.6/100,000 per annum²⁾, although it has significantly higher incidence in obese females aged 20-44 at $19/100,000^{3}$.

The prevalence of IIH in the USA is about 1 per 100,000, and it mainly affects adult women in their 20s and 30s $^{4)}$ ⁵⁾.

IIH usually occurs in obese women in the childbearing years.

The incidence of IIH in several Middle East countries has been estimated at 2.02-2.2/100,000 in the general population, which is higher than the Western rate. Obesity is a major risk factor globally and it is associated with an increased risk of severe vision loss due to IIH. There has been an increase in obesity prevalence in the Middle East countries mainly affecting the Gulf Council Countries (GCC),

which parallels increased industrial development. This rise may be contributing to the increasing incidence of IIH in these countries. Other risk factors may also be contributing to IIH in Middle East countries and the differences and similarities to Western IIH merit further study ⁶⁾.

Medical records of patients diagnosed with IIH between 2007 and 2014 in a general hospital in Northern Ireland were reviewed.

There were 45 patients with IIH, 44 women: 1 man. The mean age at presentation was 29.4 (SD 9.8) years and mean body mass index (BMI) 39.8 (SD 9.5) kg/ m2. All patients had neuroimaging, 44 (98%) had CT/MR venography and 41 (91%) had visual perimetry. The crude incidence of IIH was 2.36 per 100,000 (95% CI 1.65-3.37). For women, the incidence was 4.65 per 100,000/year (95% CI 3.25-6.66). The prevalence was 14.3 per 100,000 overall (95% CI 9.72-20.9) but 28.1 per 100,000 in women (95% CI 19.2-41.2). Visual field defects were identified in 25 of 41 (61%); 4 patients (9%) required shunting procedures. At follow-up, the mean BMI decreased by 1.6 kg/m2 (p = 0.024).

The incidence of IIH in the northwest of Northern Ireland is among the highest ever reported and probably reflects the known increase in obesity ⁷⁾.

The chairpersons of all neurology and ophthalmology departments in Israel were asked to complete questionnaires regarding patients diagnosed with PTC/IIH from 1998 through 1999. Each questionnaire contained details regarding patient's age, sex, country of birth, age at diagnosis, weight, height, presence of obesity, and the results of lumbar puncture, brain computed tomography, magnetic resonance imaging, and/or magnetic resonance venography.

Ninety-one patients with PTC/IIH were diagnosed during the years 1998 to 1999. Eighty-five (93.4%) patients were females and six (6.6%) patients were males. The calculated incidence of PTC/IIH in the Israeli general population was 0.57 to 0.94 per 100,000 persons, with incidences of 1.82 per 100,000 for women and 0.034 per 100,000 for men. The incidence for women during the childbirth years was 4.02 per 100,000. The female to male ratio was higher than previously reported for Western countries.

Although the population of Israel is a mixture of people originating from Eastern and Western countries, the incidence of PTC/IIH was found to be similar to that of Western countries. This finding is an additional support to the notion that PTC/IIH is more common in obese populations⁸⁾.

Epidemiology in Asia

The epidemiology of Idiopathic Intracranial Hypertension (IIH) in Asian populations is less welldocumented compared to Western populations. However, the condition appears to be less common in Asian countries than in Western regions, likely due to differences in obesity prevalence, genetic factors, and environmental influences.

Key Epidemiological Insights in Asians: Incidence and Prevalence:

Lower Prevalence: IIH is generally less prevalent in Asian populations compared to Western countries, where the condition is more strongly linked to obesity. Data from some Asian countries suggest that the prevalence of IIH in non-obese populations remains lower. For example, studies from Japan and South Korea report fewer cases of IIH compared to Western nations. Obesity and Risk Factors:

In Western countries, the strong association between IIH and obesity (especially in women of childbearing age) contributes to higher prevalence rates. While obesity rates are rising in some parts of Asia, they have historically been lower than in Western populations, which may account for the reduced incidence of IIH. In countries like India, China, and Japan, the relatively lower obesity prevalence could partly explain the lower incidence of IIH, though this may be changing with the increasing rates of obesity in urban areas. Gender and Age:

Similar to global trends, IIH in Asians appears to have a female predominance, especially in young adults, though data is limited. IIH remains more common in women than men, as seen in global patterns, but the overall number of cases tends to be lower compared to Western populations. Reports and Case Studies:

In India, some case reports have highlighted IIH cases in non-obese individuals, suggesting that other risk factors, such as medications or hormonal imbalances, might play a role in certain populations. In East Asia, such as Japan and China, the condition is relatively rare, and studies have indicated that when IIH does occur, it may not be as strongly associated with obesity as it is in Western countries. Emerging Trends:

As obesity rates rise in urbanized regions of Asia, particularly in countries like China and India, an increase in IIH cases may be expected. This mirrors trends observed in Western countries where the prevalence of IIH has risen with the obesity epidemic. In summary, while IIH is less common in Asian populations, particularly in non-obese individuals, changing lifestyle factors such as increasing obesity rates may lead to an increase in IIH cases over time. More epidemiological studies are needed to better understand the specific risk factors and prevalence in Asian populations.

There have been limited data on idiopathic intracranial hypertension (IIH) in Asians and there remain uncertainties whether a cerebrospinal fluid pressure of 250 mm CSF is an optimum diagnostic cutoff. The aims of the present study included (1) characterization of IIH patients in Taiwan, (2) comparisons among different diagnostic criteria for IIH, and (3) comparisons between patients with CSF pressures of > 250 and 200-250 mm CSF.

A retrospective study involved IIH patients based on the modified Dandy criteria from two tertiary medical centers in Taiwan. Clinical manifestations were retrieved from electronic medical records, and findings on ophthalmologic examination and magnetic resonance images (MRIs) were reviewed.

A total of 102 patients (71 F/31 M, mean age 33.4 \pm 12.2 years, mean CSF pressure 282.5 \pm 74.5 mm CSF) were identified, including 46 (45.1%) with obesity (body-mass index \geq 27.5), and 57 (62.6%) with papilledema. Overall, 80 (78.4%), 55 (53.9%), 51 (50.0%), and 58 (56.9%) patients met the Second and Third Edition of International Classification of Headache Disorders, Friedman, and Korsbæk criteria, respectively. Patients in the 200-250 mm CSF group (n = 40) were less likely to have papilledema (48.5% vs. 70.7%, p = 0.035), transient visual obscuration (12.5% vs. 33.9%, p = 0.005), and horizontal diplopia (10.0% vs. 30.6%, p = 0.006), and had fewer signs on MRIs (2.2 \pm 1.3 vs. 2.8 \pm 1.0, p = 0.021) when compared with those with CSF pressures > 250 mm CSF (n = 62). However, the percentages of patients with headache (95.0% vs. 87.1%, p = 0.109) at baseline, chronic migraine at six months (31.6% vs. 25.0%, p = 0.578), and visual field defect (86.7% vs. 90.3%, p = 0.709) were similar.

It was found that obesity and papilledema were less common in Asian IIH patients when compared

with Caucasian patients. Although patients with CSF pressures of 200-250 mm CSF had a less severe phenotype, the risks of having headache or visual loss were comparable to those in the > 250 mm CSF group. It is possible that a diagnostic cutoff of > 200 mm CSF could be more suitable for Asians, although further studies are still needed ⁹.

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