

Obesity, Ethnicity and Idiopathic Intracranial Hypertension

Sir,

We read the article titled “Pattern of idiopathic intracranial hypertension in Indian population” by Asutosh Pal *et al.* with great interest.^[1] While appreciating the authors’ work and research, we would like to highlight a few points with respect to obesity and idiopathic intracranial hypertension (IIH).

In Asutosh Pal *et al.*’s case series, eight out of 33 patients (24.24%) were in the overweight/obese group as per the World Health Organization (WHO) criteria, and the authors concluded that obesity might not be a dominant risk factor for the development of IIH in the Indian subcontinent. Many large series have shown that approximately 70–80% of IIH patients are obese and over 90% are overweight.^[2–4] There is robust data from epidemiological studies to establish a strong association of IIH with obesity and weight loss has been advocated in the treatment of IIH.^[5–7]

The pathophysiology of IIH is still unclear and several mechanisms have been proposed to the link between obesity and IIH, but none are able to account for all features of the disease. An increase in the rate of cerebrospinal fluid (CSF) production, a disturbance of absorption of CSF at its interface with venous compartments, occult microthrombosis occurring within the dural venous sinuses in the vicinity of arachnoid granulations, impeding CSF absorption, elevated intraabdominal pressure which increases pleural and cardiac filling pressures and impedes venous return from the brain and hypothalamic leptin resistance are some of the mechanisms put forth.^[8]

In our study from a tertiary care center in South India, 32 out of 50 patients (64%) were either overweight or obese when WHO criteria was applied, which was much higher than that reported by Asutosh Pal *et al.*, but much less than the reported global prevalence of overweight/obesity in IIH. We did serial measurements of CSF pressure—the core feature of IIH—to assess the response to treatment. We defined remission as a CSF opening pressure of ≤ 200 mm of water on two consecutive measurements. The variable that had the strongest association with remission was BMI ($P = 0.001$). Although 10 patients (55.6%) with a BMI of <25 attained remission, only two patients (12.5%) with a BMI of 25–30 did so. At the same time, none of our patients with a BMI of >30 attained remission.^[9] The above data clearly point to the role of obesity in the causation as well as response to treatment in patients with IIH in this part of the world.

According to the WHO, the four BMI cut-point categories were defined as follows: underweight (BMI <18.5), normal weight (BMI 18.5–24.9), overweight (BMI 25–29.9), and obese (BMI ≥ 30). But later, revised consensus BMIs for Asian Indians were proposed to address the higher prevalence of diabetes and cardiovascular diseases and the differing associations of BMI with body fat in this population. As per this, the patients are categorized as underweight (<18.5 kg/m²), normal or lean BMI (18.5–22.9 kg/m²), overweight

(23.0–24.9 kg/m²), and obese (≥ 25 kg/m²).^[10] It was interesting to note that, when the revised consensus criteria of BMI for India was applied in our study, the prevalence of overweight/obesity increased to 82% from 64% to 82%, which was closer to global prevalence. This indicates that ethnic-specific BMI cutoff values are to be applied not only for diabetes and cardiovascular disease but also for other obesity related health problems like IIH.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

V. Abdul Gafoor, B. Smita, James Jose

Department of Neurology, Government Medical College, Kozhikode, Kerala, India

Address for correspondence: Dr. V. Abdul Gafoor,

Associate Professor, Department of Neurology, Government Medical College, Kozhikode, Kerala - 673 008, India.
E-mail: dragdm@gmail.com

REFERENCES

1. Pal A, Sengupta P, Biswas D, Sen C, Mukherjee A, Pal S. Pattern of idiopathic intracranial hypertension in Indian population. *Ann Indian Acad Neurol* 2019;22:47–51.
2. Rowe FJ, Sarkies NJ. The relationship between obesity and idiopathic intracranial hypertension. *Int J Obes Relat Metab Disord* 1999;23:54–9.
3. Markey KA, Mollan SP, Jensen RH, Sinclair AJ. Understanding idiopathic intracranial hypertension: Mechanisms, management and future directions. *Lancet Neurol* 2016;15:78–91.
4. Szewka AJ, Bruce BB, Newman NJ, Biousse V. Idiopathic intracranial hypertension: Relation between obesity and visual outcomes. *J Neuroophthalmol* 2013;33:4–8.
5. Kupersmith MJ, Gamell L, Turbin R, Peck V, Spiegel P, Wall M. Effects of weight loss on the course of idiopathic intracranial hypertension in women. *Neurology* 1998;50:1094–8.
6. Johnson LN, Krohel GB, Madsen RW, March GA Jr. The role of weight loss and acetazolamide in the treatment of idiopathic intracranial hypertension (pseudotumor cerebri). *Ophthalmology* 1998;105:2313–7.
7. Sinclair AJ, Burdon MA, Nightingale PG, Ball AK, Good P, Matthews TD, *et al.* Low energy diet and intracranial pressure in women with idiopathic intracranial hypertension: Prospective cohort study. *BMJ* 2010;341:c2701.
8. Subramaniam S, Fletcher WA. Obesity and weight loss in idiopathic intracranial hypertension: A narrative review. *J Neuroophthalmol* 2017;37:197–205.
9. Gafoor V A, Smita B, Jose J. Long-term response of cerebrospinal fluid pressure in patients with idiopathic intracranial hypertension – A prospective observational study. *Ann Indian Acad Neurol* 2017;20:220–4.
10. Misra A, Chowbey P, Makkar BM, Vikram NK, Wasir JS, Chadha D, *et al.* Consensus statement for diagnosis of obesity, abdominal obesity and the metabolic syndrome for Asian Indians and recommendations for physical activity, medical and surgical management. *J Assoc Physicians India* 2009;57:163–70.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

DOI: 10.4103/aian.AIAN_114_19