STUDY OF HORMONAL AND COAGULATION PROFILE IN PATIENTS WITH IDIOPATHIC INTRACRANIAL HYPERTENSION

Shalaj Jain[1], Samhita Panda[1],Sarbesh Tiwari[2],Mithu Banerjee[3],Abhishek Purohit[4]

[1] Department of Neurology, [2]Department of Diagnostic and Interventional Radiology,[3]Department of Biochemistry,[4]Department of Pathology

All India Institute of Medical Sciences, Jodhpur

AIM

To study the hormonal and coagulation profile in patients with idiopathic intracranial hypertension (IIH)

OBJECTIVES

1. To study the association of hormonal profile with BMI in patients with IIH
2. To study the association of hormonal and coagulation profile with severity of IIH

MATERIAL AND METHODS

- Prospective observational study conducted at AIIMS, Jodhpur, from August 2023 to December 2024 on patients fulfilling modified Dandy criteria
- Hormonal and coagulation profiles were collected
- Severity of IIH was based on Grade of papilledema (Grade 1 to 5) and CSF opening pressure (≤ 30 cm, 31 to ≤ 35 cm, >35 cm of water)

RESULTS

- A total of 37 patients were enrolled- median age- 33 years (30-41)- 89.2 % were females
- Only 21.6% of cases with IIH were obese, whereas the **majority (78.4%) were non-obese**

Hormonal findings

- Leptin was **raised in 51.7% of non-obese cases** and only 25% of obese cases
- Unlike western studies in which higher prevalence of obesity, our patients had high leptin despite majority being non-obese[1]

Coagulation findings

- Low protein C (18.9%), protein S (48.6%) and antithrombin III (37.8%) levels were seen in IIH patients
- Higher prevalence than previous studies (4-5 %)[2]

Polycystic Ovarian Morphology

- Only 6.1% of our patients had PCOM on USG
- Much lower than Western data[3]

Severity of IIH

- No significant association was observed between CSF opening pressure or papilledema grades and hormonal abnormalities
- Fibrinogen and D-dimer levels showed non-significant differences
- Protein C, protein S, and antithrombin III showed moderate associations, with only **Antithrombin III significantly linked to higher CSF opening pressure ($\chi^2=8.231$, $p=0.024$)**

CONCLUSION

- In contrast to established literature from Western countries, a majority of our study cohort were non-obese, highlighting the importance of exploring non-obesity-related risk factors in the pathophysiology of IIH in Indian and similar Asian population
- Unlike data from Western cohorts where obesity prevalence in IIH ranges from 76% to 94%, the proportion of obese patients in our cohort was only 21.6%, while 78.4% were non-obese- this contrast underlines that although obesity remains a recognized risk factor, other mechanisms might have a dominant role in IIH pathogenesis among Indian patients
- In evaluating the hormonal profile, our study found that 89.2% of patients had at least two hormonal abnormalities. Elevated leptin was the most frequent hormonal derangement (45.9%), even among the predominantly non-obese participants. This raises the possibility that leptin resistance, rather than absolute leptin excess due to obesity, may be relevant in IIH pathogenesis in Indian patients . In addition to elevated leptin levels, the most frequent hormonal abnormalities observed were reduced testosterone levels in males (50%), hyperinsulinemia (29.7%), and decreased triiodothyronine (T3) levels (18.9%)
- Our study also highlighted a potentially underrecognized coagulation profile in IIH with abnormalities of protein C (18.9%), protein S (48.6%), and antithrombin III (37.8%) surprisingly higher than western counterparts

REFERENCES

1. Samancl B, Samancl Y, Tüzün E, Altlokka-Uzun G, Ekizoglu E, Içöz S, et al. Evidence for potential involvement of pro-inflammatory adipokines in the pathogenesis of idiopathic intracranial hypertension. Cephalalgia. 2017 May 1;37(6):525–31
2. Kesler A, Kliper E, Assayag E Ben, Zwang E, Deutsch V, Martinowitz U, et al. Thrombophilic factors in idiopathic intracranial hypertension: A report of 51 patients and a meta-analysis. Blood Coagulation and Fibrinolysis. 2010 Jun;21(4):328–33
3. Glueck CJ, Aregawi D, Goldenberg N, Golnik KC, Sieve L, Wang P. Idiopathic intracranial hypertension, polycystic-ovary syndrome, and thrombophilia. Journal of Laboratory and Clinical Medicine. 2005;145(2):72–82