

# Idiopathic Intracranial Hypertension-Clinical Spectrum- A Study Of Risk Factors, Clinical Profile And Management Outcomes

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**Abstract: Background** –Benign Intracranial Hypertension is a syndrome defined by increased intracranial pressure,normal CSF composition,absence of ventriculomegaly and intracranial lesion. There are contraversies regarding etiology, clinical features and treatment outcomes of BIH.Therefore, the aim of this study was to describe risk factors, clinical profile, treatment and in patients with Benign Intracranial Hypertension in a tertiary hospital. **Methods** : The study was done between August 2017 - August 2021.33 cases of benign intracranial hypertension who are suspected by history, confirmed by MRI and MR Venography

**Results** : In this study most patients with this disease present in the third decade of life. [2] ,of which 22 members in between 18-40 yrs,10members in between 41-60 yrs,1Member more than 60yrs. IIH has a strong predilection for obese women,Of which 24% is of < 25kg/m<sup>2</sup>,42% is of 25-29kg/m<sup>2</sup> and 22% is of 30-35kg/m<sup>2</sup>,>35 kg/m<sup>2</sup> 12%. The most common presentation is vomitings in 45%, headache in 42% [3] Other symptoms include visual disturbances , lateral rectus palsies in 12% cases, CSF rhinorrhea in 18%94% patients responded to medical management of which 24% to repeated lumbar punctures,39% to LP PLUS Diuretics,31% to LP plus diuretics plus steroids . If persistent headache with rapidly deteriorating visual disturbances were present surgical management in 6% was advised

**Conclusion:** Early diagnosis and application of diuretics or corticosteroids most often guarantee the successful control over clinical symptoms and papilledema

**KEYWORDS:** PAPHILLOEDEMA,LUMBAR PUNCTURE,STERIODS,OBESITY.

## INTRODUCTION

- Benign Intracranial Hypertension is a syndrome defined by increased intracranial pressure normal CSF composition, absence of ventriculomegaly and intracranial lesion<sup>[1]</sup>
- Also known as Pseudotumor Cerebri and Idiopathic Intracranial Hypertension
- Etiology of BIH remains uncertain in majority of patients
- But there is an association of BIH with several risk factors.
- Young, obese or recent weight gain females of reproductive age has been found to have strong association with BIH hypoparathyroidism <sup>[2]</sup>.
- Other risk factors include
  - Drugs like tetracycline, risperidonevitamin A, E and steroid overuse some endocrine & Metabolic dysfunctions like adrenal insufficiency, cushings, hypothyroisim hypoparathyroidism <sup>[2]</sup>
- Most common symptom of BIH includes
  - headache,
  - nausea,vomiting,
  - dizziness,
  - transient visual obscurations like lateral rectal palsy,
  - ocaasionally CSF rhinorrhea
  - tinnitus<sup>[3,4,5]</sup>
- Most common sign of BIH includes papilloedema in majority of cases and CSF opening pressure was more than 20 cm of H<sub>2</sub>O with normal CSF composition
- Methods of treatment include
  - weight loss,
  - withdrawal of associated medication,
  - acetazolamide or furosemide therapy, <sup>[6]</sup>
  - systemic corticosteroids,
  - repeated lumbar punctures,
  - surgical decompression
- Outcome of treatment is assessed by regression of papilledema and resolution of symptoms.
- There are contraversies regarding etiology, clinical features and treatment outcomes of BIH.

- Therefore, the aim of this study was to describe risk factors, clinical profile, treatment and in patients with Benign Intracranial Hypertension in a tertiary hospital.

**Methods and materials**

- The study was done between August 2017 - August 2021.
- 33 cases of benign intracranial hypertension who are suspected by history, confirmed by MRI and MR Venography
- The following data were used from the clinical records:

Sex,

Age,

Risk factors like BMI

Clinical presentation

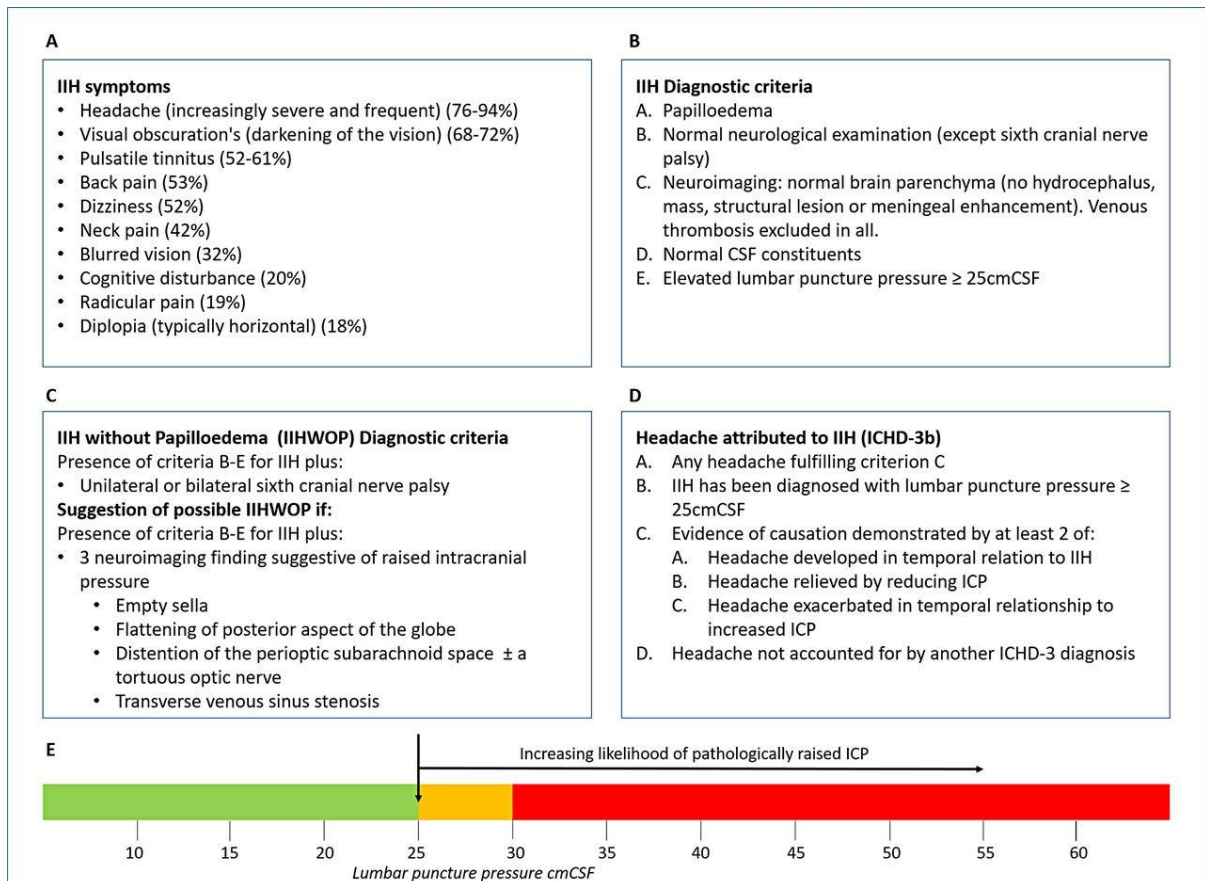
Imaging methods (CT scan, MRI, and MR angiography),

**Treatment** (lumbar puncture, acetazolamide, surgical management)

Benign intracranial is diagnosed if patient meets following criteria

Modified Dandy Criteria (2001) Diagnostic criteria: [10]

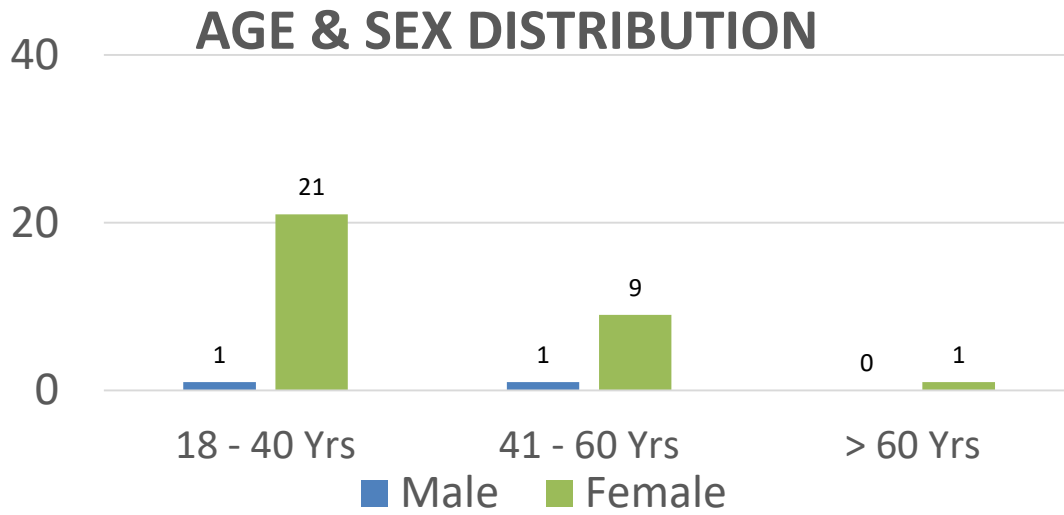
- Signs and symptoms of increased intracranial pressure
- Awake and alert patient.
- No abnormal neurological findings except papilloedema or abducens nerve (CN VI) palsy [3,4]
- Normal CT/MRI except for empty sella or small ventricles [8]
- Increased CSF opening pressure
  - >20 cm H<sub>2</sub>O in nonobese or
  - >25 cm H<sub>2</sub>O in obese patient)
  - with normal CSF composition
- No other known cause of raised intracranial pressure



**Results**

- Mean age at time of admission was **34.6 years** (range 18-63yrs). Incidence is more in middle aged groups
- The group included 31 women and 2 men. Incidence is more in women compared to men.
- Considering Risk factors, obese people has more incidence compared to non obese people.

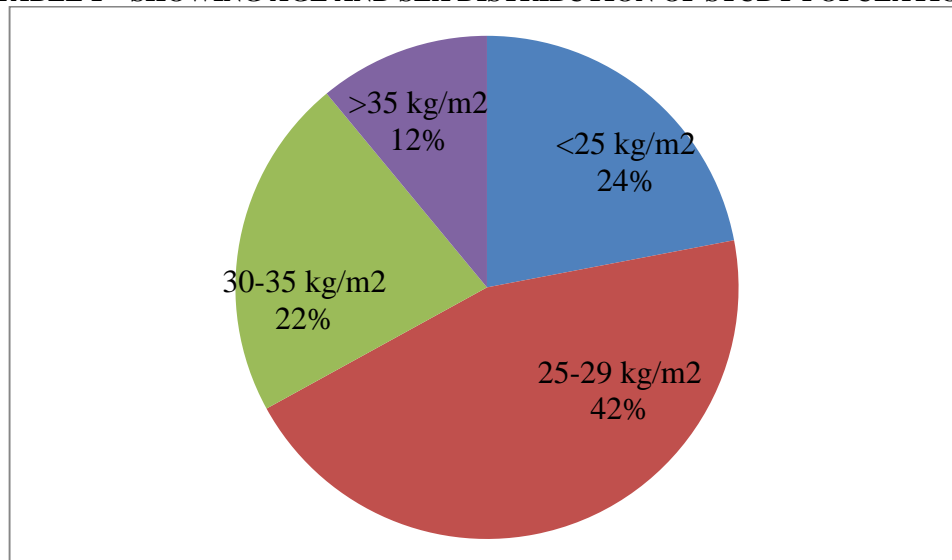
Observations & Results:



**GRAPH 1 – SHOWING AGE AND SEX DISTRIBUTION OF STUDY POPULATION**

	MALE	FEMALE
18-40 yrs	1	21
41-60 yrs	1	9
>60 yrs	0	1
<b>Total</b>	<b>2</b>	<b>31</b>

**TABLE 1 – SHOWING AGE AND SEX DISTRIBUTION OF STUDY POPULATION**



**GRAPH 2– SHOWING BMI of patients DISTRIBUTION OF STUDY POPULATION**

BMI Of patients	No of patients	percentage
<25 kg/m <sup>2</sup>	8	24%
25-29 kg/m <sup>2</sup>	14	42%
30-35 kg/m <sup>2</sup>	7	22%
>35 kg/m <sup>2</sup>	4	12%

**TABLE 2– SHOWING BMI of patients DISTRIBUTION OF STUDY POPULATION  
Clinical presentation of IHH**

Clinical presentations	No of patients	percentage
Headache	14	42%
Tinnitus	6	18%
Diplopia & 3 rd nerve palsy	4	12%
Vomitings	15	45%
CSF Rhinorrhea	6	18%

**TABLE 3– SHOWING CLINICAL PRESENTATION OF STUDY POPULATION**

Treatment	No of patients	percentage
Lumbar puncture repeated	8	24%

LP + DIURETICS	13	39%
LP+ DIURETICS + STEROIDS	10	30%
SURGERY	2	6 %

**TABLE 4 – TREATMENT OF STUDY POPULATION****Discussion**

- ❖ The main limitation of this study is lack of generalizability due to its retrospective nature.
  - ❖ Incidence of IIH ranges from 0.9 to 1.0 per 100,000 in the general population, increasing to 1.6-3.5 per 100,000 in women and to 7.9-20 per 100,000 in women who are overweight<sup>[4,6]</sup> .
  - ❖ Although IIH may affect individuals of any age, in this study most patients with this disease present in the third decade of life.<sup>[2]</sup> ,of which 22 members in between 18-40 yrs,10members in between 41-60 yrs,1 member >60yrs compared to study by **Alexandra Tzoukeva et al** <sup>[7]</sup> .
  - ❖ In this study, IIH has a strong predilection for obese women,Of which 22% is of <25kg/m<sup>2</sup>,45% is of 25-29kg/m<sup>2</sup> and 22% is of 30-35kg/m<sup>2</sup>. More than 90% of patients with IIH are obese women of childbearing,this is comparable to study by **Hannerz J et al** <sup>[5,6]</sup>
  - ❖ There are many such rare 'associations' but some of these include:
    - Taking(or after stopping)certain medicines such as steroids, some antibiotics and oral contraceptive pills
    - Other diseases such as SLE, Sarcoidosis and kidney diseases.
    - Pregnancy
  - ❖ According to study and literature, the most common presentation is vomitings in 45%, headache in 42% <sup>[3]</sup> Other symptoms include visual disturbances , lateral rectus palsies in 12% cases, CSF rhinorrhea in 18% compared to study by Friedman DI et al <sup>[8]</sup>
  - ❖ Most common sign in BIH is papilloedema in fundus examination <sup>[11]</sup>
  
  - ❖ Imaging of patient shows no thrombosis but fulfilling criteria for BIH, Lumbar puncture was performed in this patients showing increased CSF opening pressure (>20 cm H<sub>2</sub>O in non-obese or >25 cm H<sub>2</sub>O in obese patient) as by Friedman DI et al <sup>[11]</sup>
  - ❖ CSF analysis was normal
  - ❖ Visual field charting was performed in all patients to known the extend of visual loss.
  
  - Various treatment modalities includes <sup>[6,9]</sup>
    1. Weight reduction and cessation of offending drugs
    2. Repeated lumbar punctures
    3. Adding acetazolamide or furosemide if symptoms persists compared by study done by Celebisoy N <sup>[9]</sup>
    4. Adding systemic steroids
    5. Surgical decompression if medical management fails <sup>[15]</sup>
- 94% patients responded to medical management of which 24% to repeated lumbar punctures,39% to LP PLUS Diuretics,31% to LP plus diuretics plus steroids .
- If persistent headache with rapidly deteriorating visual disturbances were present surgical management in 6% was advised compared to study by Ball AK et al <sup>[15]</sup>

**Conclusion**

- Our study suggests that BIH is most commonly associated with young age, female sex, and obesity.
- Neuro ophthalmologic examination, neuroimaging, and CSF evaluation are the most useful diagnostic tools.
- Early diagnosis and application of diuretics or corticosteroids most often guarantee the successful control over clinical symptoms and papilledema.

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