



ORIGINAL RESEARCH PAPER

Ophthalmology

CLINICO DEMOGRAPHIC PROFILE OF PATIENTS WITH IDIOPATHIC INTRACRANIAL HYPERTENSION AT A TERTIARY HOSPITAL IN SUB URBAN CHENNAI

KEY WORDS:

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ABSTRACT

Introduction: Idiopathic intracranial hypertension (IIH) is a disorder of elevated cerebrospinal fluid pressure of unknown cause. It is usually seen in women of childbearing age.
Patients and methods: This was a prospective study conducted over a period of one year from February 2017 to March 2018 and followed up for mean of 12 months till March 2019. All patients with IIH who met the modified dandy criteria were reviewed and relevant data was collected like age, sex, BMI, presenting symptoms, systemic history (medical and surgical), drug history, imaging studies, treatment and outcome.
Results: 30 patients were included in the study. Systemic risk factors were noted in 6 patients Headache associated with nausea was the most common complaint followed by blurring of vision and diplopia. A high BMI was seen in 19 out of 30 patients (highest BMI – 29.8). OCP usage was seen in 5 patients. MRI findings consistent with IIH was seen in all patients. CSF analysis revealed elevated opening pressure (> 250 mm water) in all, with normal biochemical studies. All patients were managed with medicines (93%) and surgery was reserved for those refractory to medical management (6.66%).
Conclusions: Idiopathic intracranial hypertension is characterized by elevated CSF pressure of unknown cause mainly seen in women of child bearing age. Diagnosis should adhere to the modified Dandy's criteria. These patients should be followed closely and monitored for therapeutic response and deterioration of vision. Treatment is always started medically and followed up surgical when not controlled.

INTRODUCTION :

IIH is a disorder characterized by elevated intracranial pressure with no evidence of pathology. Quincke first reported IIH in 1897 after introduction of lumbar puncture. Later Dandy formulated the diagnostic criteria in 1937, later modified by Smith in 1985^{1,2}. The diagnostic criteria is based on signs and symptoms of elevated intra cranial pressure with no anomalies in CSF and neuro imaging. IIH is most common in young and obese women to men with 8:1 ratio^{3,4}. The most common symptoms are headache, associated with nausea and vomiting, visual disturbance, visual field defects, diplopia, pain and photophobia. Fundus examination may reveal unilateral or bilateral papilloedema. Neuro examination will be usually normal except 6th nerve paresis. The main aim of the present study is to establish a clinic demographic profile of patients who met with the modified Dandy's criteria attending our centre.

MATERIALS AND METHODS:

Patients diagnosed with Idiopathic Inracranial Hypertension at the Ophthalmology department from February 2016 to March 2017 were included in the study. All patients were also examined by neurologist and patients who met with the modified Dandy's criteria were included. Detailed history regarding following parameters were obtained like age, sex, marital status, weight, height, BMI, risk factors like Diabetes mellitus, systemic hypertension, dyslipidemia, heart diseases, relevant neuro history, surgical history, tobacco usage in any form, recent weight gain, usage of oral contraceptive pills, relevant investigations like neuro imaging, automated perimetry, CSF analysis. Patients were followed up for 1 year till march 2019. History regarding recurrence, remission and drug reactions were noted.

Age wise	No of patients
15 - 20	2
21 - 25	4
26 – 30	4
31 - 35	9
36 – 40	7
41 - 45	4

Risk factors	No of patients
Systemic hypertension	2(33.33%)
Dyslipidemia	4(66.66%)

Symptom	No of patients
Headache	26(86.6%)
Blurring of vision	20(66.66%)
diplopia	5(16.66%)
Visual field defects	4(13.33%)

OCP usage	No of patients
yes	6(20%)
No	24(80%)

BMI	No of patients
Over weight(>25)	19(63.33%)
normal	11(36.66%)

Treatment	No of patients responded
medical	28(93.33%)
surgical	2(6.66%)

RESULTS :

30 patients who met with the criteria were selected and followed up. All patients were females with mean age of 30 years ranging from least age of 16 to highest of 44 years. Out of which 23 (76.6%) were married and 7(23.3%) were unmarried. BMI > 25 (over weight) was recorded in 19 patients (63.3%) with highest of 29.8. Recent weight gain (within 10 months of study) was seen in 8(42.1%) out of 19 patients who had a high BMI. 6 patients (20.3%) presented with systemic risk factors like systemic hypertension (33.3%) and dyslipidemia (66.6%). Hormonal contraception (OCP) usage was seen in 6 patients (20%) of which 2 patients used for 2 months and 4 patients used for about 4 -5 months for irregular menstrual cycles. No significant predisposing surgical history was seen in these patients. Symptom profile of headache associated with nausea was seen in 24 patients (80%) and associated with vomiting was seen in 2 patients (6.66%) . Blurring of vision was seen in 20 patients (66.6%) in which 6(30%) of them has refractive error. 4 patients (13.3%) presented with diplopia due to 6th nerve palsy and 1 patient (3.33%) was seen with 7th nerve palsy. All patients were found to have bilateral papilloedema on fundus examination, of which 25 patients (83.3%) established papilloedema and 5 showed mild papilloedema (16.6%) .4 patients (13.3%) showed visual field defects like enlargement of blind spot seen in 3 patients (75%) and loss of infero nasal visual field was seen in 1 patient (25%) . CSF opening

pressure while doing Lumbar Puncture was recorded in all patients and found to be high(250 mm of water) in all 30 patients (100%) with normal cytology and biochemical parameters. Neuro imaging (MRI and MRV) was done in all patients. Prominent peri optic sub archnoid CSF space with flattened optic nerve heads was seen in 18 patients (60%) , hypoplasia of transverse sinus was seen in 2 patients (6.66%) , prominent archnoid granulations was seen in 2 patients (6.66%), thickened and increased tortuosity of optic nerves seen in 4 patients (13.33%), 4 patients (13.33%) showed empty sella . All patients were subjected to medical treatment and 28 patients (93.33%) responded well and 2(6.66%) of them were treated with surgery (VP shunts) in refractory cases.

Figure 1: Early papilloedema

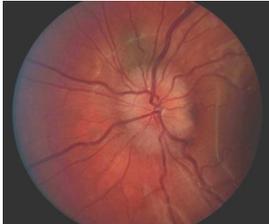


Figure 2 : Established papilloedema



Figure 3 : Peri optic widening of sub-archnoid space

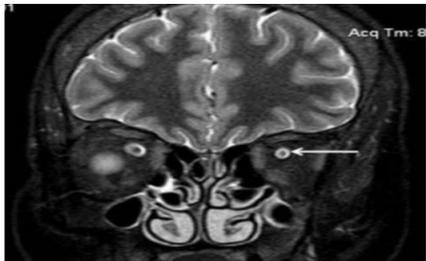


Figure 4 : Hypoplastic transverse sinus



Figure 5 : Empty sella



seen in 19 patients which impacts a positive correlation with incidence of IIH. Risk factors like hypertension was seen which can be linked to increased intra cranial tension. Recent weight gain (within 10 months of study) was seen in 8 patients out of 19 high BMI patients which is a positive correlation for IIH. Use of OCP is a known risk factor for IIH which was seen in the present study (6 / 20%) as well^{5,6}. Headache was the most presenting symptom (86.6%). Headache profile of IIH might range from daily pulsatile headaches to constant pain. Cranial nerve palsies are seen in 5 patients in which 6th nerve palsy is more common leading to diplopia on lateral gaze. Usually bell's type of 7th nerve palsy will be seen associated if present. The cranial nerves that make nearly a 90 degree bend (CN 2, 6, 7) are more susceptible at the bend site⁷. Transient blurring of vision was the second most presenting complaint(20%). Visual field loss was assessed using Humphrey Automated Perimetry. Enlarged blind spot was seen more following loss of inferior nasal fields correlating to extent of papilloedema⁸. This was severe in patients who had recent weight gain than gradual weight gain. There showed a 50% perimetric improvement (based on mean deviation value) in patients who responded well to the treatment⁹. Papilloedema was seen in all 30 patients of the study (since strict adherence was maintained with diagnostic dandy criteria). The three main factors involved in pathogenesis of papilloedema are IOP, ICT, systemic hypertension. The 2 main mechanism involved for damage of optic disc in ICT are disruption of axonal transport and intraneuronal optic nerve ischemia^{10,11,12}. High CSF pressure disrupt the normal gradient between intraocular and retrolaminar pressure causing increase odema of optic nerve. This is likely to disrupt axonal flow resulting in intraxonal odema. Careful examination of fundus to be done to screen other conditions like tilted discs, buried disc drusen which mimics papilloedema. Diagnosis of IIH is mainly by exclusion. Modified dandy criteria has to be followed strictly in diagnosing IIH.

TREATMENT :

Though there is a definite criteria for diagnosis, there is no strict protocol for the treatment of IIH. The main indication of treatment was based on severity of vision loss followed by severity of symptoms and the extent of disturbance in daily activities of patients. The main modality of treatment is medical followed by surgical control of ICT. Surgical therapy is mainly reserved for moderate to severe papilloedema with risk of loss of vision. Medical and supportive measures are reserved for mild to moderate papilloedema and no to mild reduction in vision. Reduction in weight of about 5 – 10% usually shows improvement in symptoms and resolution of papilloedema in most of the patients. Encouraging patients to pursue weight reduction programmes and encouraging low salt diet and mild fluid restriction helps in rapid reduction of weight which relieved the symptoms. The most common medical treatment given was Acetazolamide 1 mg/Kg body weight with maximum of 1-2 grams per day. The mechanism of action of acetazolamide is multifactorial, mainly by reducing CSF production. Less commonly it changes the taste of food leading to anorexia and weight loss. The most common side effects are metabolic acidosis, tingling of feet and perioral region. Renal stones and aplastic anemia are noted rarely. Corticosteroids are used occasionally in spite of good response because of rebound papilloedema on withdrawal and side effects like weight gain, striae and acne. Rapid tapering or withdrawals of steroids are highly associated with recurrence. Furosemide (LASIX) 20 mg BD can be used in accentuating the process which works by diuresis and reducing the sodium transport into the brain. Surgical therapies like LP, ON sheath fenestrations, Lumbar peritoneal shunts and ventriculo peritoneal shunts are in practice. LP helps in reduction of ICT rapidly but is associated with fast rebuilding of ICT. This is also associated with side effects like brain herniation and infections due to frequent attempts. Optic nerve sheath fenestrations done through sub temporal or para occipital approach. Good efficacy is noted with this procedure^{13,14} but loss of vision is seen in perioperative period was seen in some patients. CSF shunting procedures like LP or VP shunts are done which has maximum control of ICT and symptoms. Failures of shunts have also been noted but very less, hence these procedures are reserve for patients with failed medical therapy and for who are at risk of loss of vision.

DISCUSSION :

IIH is present worldwide with an approximate incidence of 1-3/100000 persons. It is more frequent in obese women of child bearing age out numbering men. BMI indicating over weight was

CONCLUSION:

IIH is a disorder of raised CSF pressure of unknown cause. Although IIH is a diagnosis of exclusion and cause is obscure, if left untreated or overlooked can lead to potential complication like blindness. Even though many studies have been conducted to find the causes for IIH, none has proven any. In our study, recent weight gain, OCP usage showed increased association with IIH, but a causal relationship could not be established. Diagnosis should be based on modified dandy criteria after ruling out all possible causes of intracranial hypertension. All patients should undergo full ophthalmic and neuro examination including, fundus examination, CSF analysis, MRI/MRV imaging. All patients should be followed up sequentially with optic disc grading, photographs and perimetry. Individualized treatment plan should be made based on severity of papilloedema and vision loss. Treatment should be focused mainly on preventing or controlling vision loss.

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