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Medicine

Outcome of 30 patients with Idiopathic Intracranial Hypertension (IIH) – Role of therapeutic lumbar puncture in a tertiary hospital in South Tamil Nadu

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ABSTRACT IIH is defined as raised intracranial pressure without ventricular enlargement or intra cranial mass on imaging, with normal cerebrospinal fluid constituents.Options for treatment of IIH include weight reduction, avoidance of OCPs, steroids, drugs for reducing CSF production like acetazolamide, anticonvulsant topiramate and for refractory cases, optic nerve fenestration in patients with impending visual loss and lumboperitoneal shunt surgery for patients with refractory headaches. 30 patients with IIH were studied and their outcome were followed for 1 year duration. Optimal medical management was beneficial in most of the patients with IIH. 4 out of 30 patients were refractory to medical line of management, were referred for shunt surgery. Therapeutic lumbar puncture was helpful in patients who are symptomatic inspite of optimal medical management and awaiting surgery.

Abbreviations: (IIH – Idiopathic intracranial hypertension, CSF – Cerebrospinal fluid, OCP- Oral contraceptive pills, CVT- Cerebral venous thrombosis, LP- Lumbar puncture)

KEYWORDS : Idiopathic intracranial Hypertension, Therapeutic lumbar puncture, outcome

Introduction : IIH is defined as raised intracranial pressure without ventricular enlargement or intra cranial mass on imaging, with normal cerebrospinal fluid constituents The following criteria are commonly used to diagnose idiopathic intracranial hypertension (Modified Dandy's criteria):

1. Clinical features of elevated intracranial pressure
2. The patient is awake and alert
3. No localizing signs with the exception of sixth nerve palsy
4. Normal CT/MRI findings without evidence of CVT
5. LP opening pressure of > 25cm water and normal CSF analysis
6. No other explanation for the raised intracranial pressure

Materials and methods:

We followed up 30 patients with idiopathic intracranial hypertension for a period of 1 year.

As part of initial assessment a detailed history of headache, visual symptoms, vomiting and history of any drug intake(NSAIDs, steroids, oral contraceptives, antibiotics) were obtained. Examination findings including papilloedema, field defects, visual acuity and 6th nerve palsy were recorded. Basic investigations like complete hemogram, erythrocyte sedimentation rate, CRP, blood sugar, renal function tests and thyroid profile were obtained at the time of admission. MRI Brain with venogram was done for all the patients to rule out mass lesions and cerebral venous thrombosis, as required by the definition. Lumbar puncture was done and the CSF opening pressure was recorded for all patients and CSF analysis was performed to rule out chronic meningitis.

Patients had an ophthalmologic evaluation with visual acuity, fundus and field charting at the time of admission and daily till discharge. Patients were started on oral Acetazolamide 250mg twice daily and the dose escalated gradually and titrated according to symptoms, up to a maximum of 1.5g per day. Injection mannitol was added in those with severe symptoms. Steroids were used only as a last resort in those with worsening vision despite being on diuretics. Therapeutic lumbar puncture was tried in patients with refractory IIH awaiting surgery. Neurosurgical consultation was obtained for patients who did not improve with medical management.

Observation and Results:

Demography: The age of our patients ranged from 15years to 43 years and the mean age was 28years. There were twenty four females and six males.

Drug history: Four patients had taken over the counter NSAIDs within the past month. Three patients admitted taking oral contraceptives. Others did not have any significant drug history.

Clinical symptoms and signs: The mean duration of headache at presentation was 15 days (range 7 to 30 days). Six patients had blurring of vision and/or diplopia at the time of admission. All had established papilloedema (Fig:1).Six had unilateral 6th nerve palsy. Visual field constriction, enlargement of blind spot and reduced visual acuity were documented at the time of admission in 4 patients.

Investigations :All our patients had CSF pressure more than 25cm water.The CSF pressure ranged from 26cm to 45cm. All of them had normal CSF analysis, as required by the definition. MRI Brain was normal in 18 patients and showed featured of empty sella syndrome and optic nerve sheath thickening in 12 patients.

Treatment and outcome:

The mean duration of hospital stay was 2 weeks, range being 10 to 28 days.According to response to treatment, we grouped the patients as follows--

NUMBER OF PATIENTS	OUTCOME
Group 1 –fourteenpatients	GOOD IMPROVEMENT WITH INITIAL MEDICAL MANAGEMENT
Group 2 - twelve patients	POOR SYMPTOM RESOLUTION, BUT NO VISUAL DETERIORATION
Group 3 – four patients	VISUAL DETERIORATION

Group 1:Fourteenof our patients improved symptomatically with initial medical management and their visual fields and acuity did not show any deterioration. They were discharged on oral acetazolamide and all of them remained stable on outpatient followup for upto 6 months.

Group 2: Twelve of our patients had persistent headache with medical management, but there was no deterioration in visual fields or acuity. We added Topiramatefor symptomatic benefit and discharged them with advice to be on close outpatient follow up. All of them remained stable on follow up, and had good resolution of papilloedema.

Group 3: Four of our patients had worsening visual acuity, with field constriction despite medical therapy. Following neurosurgery consultation we did therapeutic lumbar punctures with removal of

20ml of CSF. Out of four patients who had therapeutic LP, two patients improved after 3 therapeutic lumbar punctures and were continued on medical management.Two of them developed persistent headache and underwent lumboperitoneal shunt.

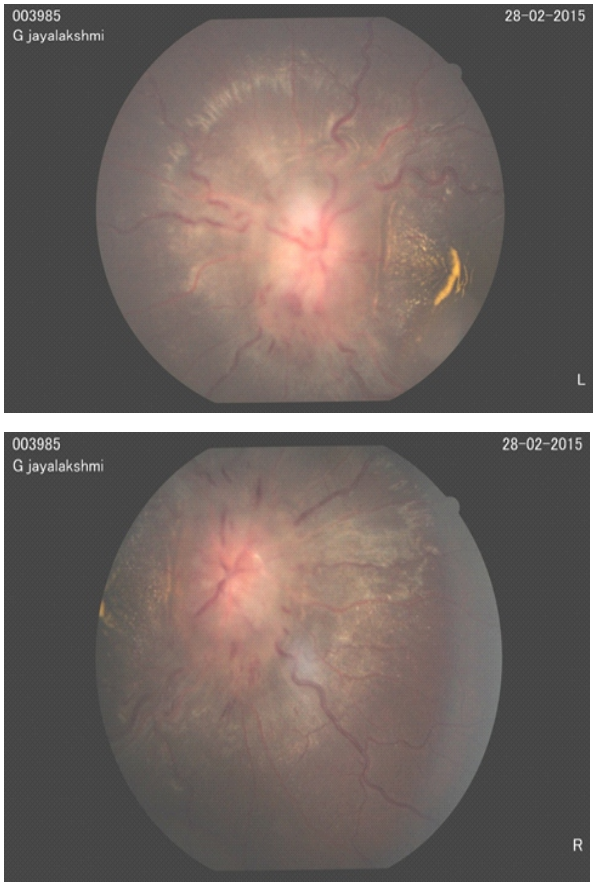

Figure 1: Fundus photograph of a patient with IIH, showing established papilledema.

Therapeutic lumbar puncture for idiopathic intracranial hypertension:

In our experience, 2 patients who did not improve with initial medical management showed sustained improvement following therapeutic lumbar puncture. Therapeutic lumbar puncture is generally viewed as a transient measure to bridge the gap till a definitive shunting procedure is done. This is based on the observation that at the normal rate of CSF production, 20ml CSF will be replenished in a matter of hours. However, there is the possibility that continuous CSF leak through the dural puncture site may provide longer relief to the patient. Repeated lumbar puncture may turn the dura into a 'sieve' that allows CSF to leak for an extended period and provide time for medical measures to act. It is noted that there are no randomized controlled trials that have studied the interventions in IIH and surgical shunting procedures have significant risks and failure rates–. This is an observational study where 2 patients with refractory IIH improved with therapeutic lumbar puncture which can be suggested for patients who are awaiting shunt surgery.

Summary: Optimal medical management was beneficial in most of the patients with IIH. 4 out of 30 patients were refractory to medical line of management, were referred for shunt surgery. Therapeutic lumbar puncture was helpful in 2 patients who were symptomatic inspite of optimal medical management and awaiting surgery.

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