



OUTCOME OF OCCIPITAL NERVE BLOCK IN PATIENTS WITH CHRONIC HEADACHES

Physical Medicine and Rehabilitation

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ABSTRACT

Background: Chronic headaches are very prevalent affecting a sizable number of global populations. **Occipital nerve block (OCN)** can help them relieve their pain and get back to their normal life. Conditions that are treated with occipital nerve blocks include: Chronic migraine, Episodic migraine, Chronic cluster headaches, Episodic cluster headaches, Tension-type headaches, Occipital neuralgia. These may include types of pain that start at the back of the head near the neck, and then radiate outward throughout the skull. Occipital nerve block is a minimally invasive intervention, inhibits or blocks the disproportionate or chronic signals that are sent to the brain, processed and perceived as headache pain, resulting in pain relief lasting up to several months. It is our humble approach to see the effectiveness of this mode of minimal intervention.

Objectives: The aim was to see the effectiveness of Occipital Nerve Block in patients of Chronic headaches.

Place of study: Dept of PMR, IPGME & R and SSKM Hospital, Kolkata

Period of study: 1 st. September, 2017 to 31 st. August, 2018. (12 months)

Study pattern: Prospective Longitudinal Outcome Study

Methods: After getting Institutional Ethical Committee clearance a total number of 98 patients with Chronic headaches who did not respond with conservative management were included. Patients with other causes of headache, patients with diabetes, severe hypertension, otherwise contraindicated for injections, are excluded. Occipital nerve blocks performed to patients and were evaluated initially and at the 4th, 8th, and 12th week followed up using Numeric Pain Rating Scale (NPRS). Adverse events and patient satisfaction were recorded, number of attacks pre 4wks and after intervention.

Results: Statistically significant improvement is seen in these patients treated with Occipital Nerve Block

Conclusions: Occipital Nerve Block **effective mode of management in patients with Chronic headaches** and may be recommended to patients with moderate to severe chronic pain that has not responded to conventional treatment such as oral painkillers or lifestyle interventions.

KEYWORDS

Occipital Nerve Block, Chronic headaches

INTRODUCTION:

Chronic headaches are very prevalent affecting a sizable number of global populations. Occipital nerve block (OCN) can help them relieve their pain and get back to their normal life. Conditions that are treated with occipital nerve blocks include: Chronic migraine, Episodic migraine, Chronic cluster headaches, Episodic cluster headaches, Tension-type headaches, Occipital neuralgia.^{1,2,3} These may include types of pain that start at the back of the head near the neck, and then radiate outward throughout the skull. Occipital nerve block is a minimally invasive intervention, inhibits or blocks the disproportionate or chronic signals that are sent to the brain, processed and perceived as headache pain, resulting in pain relief lasting up to several months.^{4,5}

Objectives: The aim was to see the effectiveness of Occipital Nerve Block in patients of Chronic headaches.

Place and period of study: Dept of PMR, IPGME & R and SSKM Hospital, Kolkata, from 1 st. September, 2017 to 31 st. August, 2018. (12 months)

Study pattern: Prospective longitudinal outcome study

Methods: Permission was taken from Institutional Ethical Committee. Selection of 98 patients by inclusion (Chronic headaches who did not respond with conservative management) and exclusion criteria (diabetes, hypertension and otherwise unfit for injection) and informed consent was taken. Occipital nerve block and follow up at 4th, 8th, 12th week using NPRS (numeric pain rating scale). Adverse effect, patient satisfaction and number of attacks pre and 4 weeks post injection noted.

Procedure: After proper cleaning and dressing Injection depo-methyl prednisolone (80mg) + lignocaine (2%) 2cc + bupivacaine (0.25%) 2cc is applied over 3 points nearing midpoint of the line connecting occipital protuberance and mastoid prominence.

Figure 1 and 2 showing distribution of Greater occipital nerve (GON) and Lesser occipital nerve (LON)⁶ (Anderson JE. Grant's Atlas of Anatomy. 7th ed. Baltimore: Williams & Wilkins Co.; 1978)

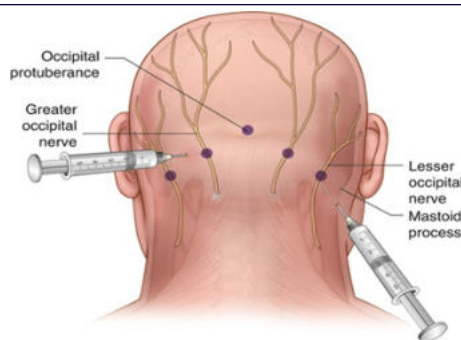


Fig:1

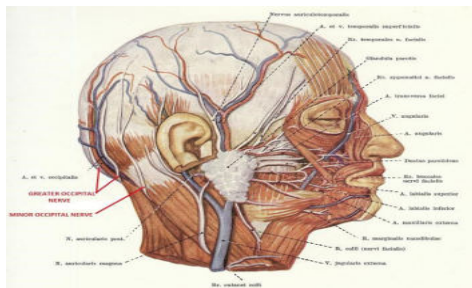


Fig:2



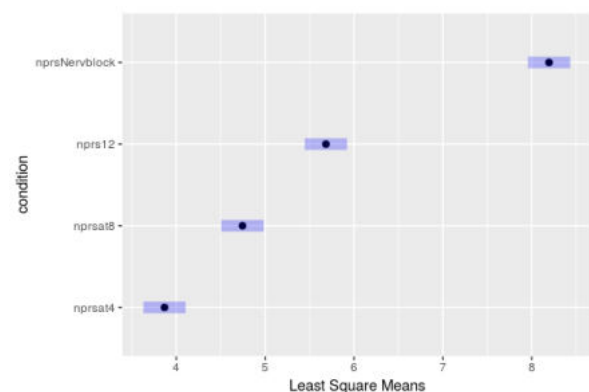
Fig:3 Showing procedure

Results and analysis:**Table 1: Baseline Characteristics of Study participants (n=98)**

Variable	Frequency	Percentage	Remark
Age			Mean (SD) = 38.66 (7.52) Range = 21 - 57
≤25 years	4	4.08	
26-35 years	26	26.53	
36-45 years	50	51.02	
46-55 years	17	17.35	
≥56 years	1	1.02	
Sex			
Female	55	56.12	
Male	43	43.88	
Diagnosis			
Cervicogenic	23	23.47	
Cluster Headache	5	5.10	
Migraine	32	32.65	
Occipital Neuralgia	16	16.33	
Tension Headache	22	22.45	
	98	100	

Table 2: Post Intervention Status of Study participants (n=98)

Variables	Mean	SD	Remarks
Numeric Pain Rating Scale during Nerve Block	8.19	0.55	Difference in the mean was found to be statistically significant using repeated measure ANOVA (p-value = 0.000). Post-hoc test using Tukey's correction revealed that significant difference existed at alpha = 0.05 among the 4 estimates.
Numeric Pain Rating Scale during 4 th Week Follow Up	3.87	0.96	
Numeric Pain Rating Scale during 8 th Week Follow Up	4.74	1.02	
Numeric Pain Rating Scale during 12 th Week Follow Up	5.68	1.09	
Side-Effect	1	0.01	This is expressed in frequency (percentage)
Mean Number of Incidences 4 week Prior to Injection	2.33	0.65	There is a reduction in mean number of incidences after injection (1.93 [1.76,2.09]); paired t-test revealed the difference to be statistically significant (p-value = 0.000)
Mean Number of Incidences 4 week after Injection	0.40	0.59	
Mean Patient Satisfaction Score	2.29	0.73	Ranges between 1-3

**Figure 4: Evolution of responses according to Numeric Pain Rating Scale during the follow up period****DISCUSSIONS:**

In our study, more than 50% patients are between 36 – 45 years. Mean age is 38.66 years and the range is between 21 to 57 years. Number of male patients are 43 and number of female patients are 55. There is female preponderance as per our study. Most of the cases are of Migraine (32.65%) followed by cervicogenic headache (23.47%), Tension headache (22.45%), Occipital neuralgia (16.33%) and cluster headache being 5.1% only. After Occipital nerve block, patients were followed up at 4th, 8th, 12th week using NPRS (numeric pain rating

scale). Adverse effect, patient satisfaction and number of attacks pre and 4 weeks post injection noted. While considering, Numeric Pain Rating Scale during Nerve Block, Numeric Pain Rating Scale during 4th Week, 8th Week and 12th Week follow up shows difference in the mean was found to be statistically significant using repeated measure ANOVA (p-value = 0.000). Post-hoc test using Tukey's correction revealed that significant difference existed at alpha = 0.05 among the 4 estimates. There is a reduction in mean number of incidences after injection 1.93; paired t-test revealed the difference to be statistically significant (p-value = 0.000). Regarding side effects 0.01% patients shows pain at injection sites which persists for 2 to 3 days only.

As per study conducted by Magis D, et al. long-term follow-up confirms the efficacy of occipital nerve stimulation (ONS) in Drug-resistant chronic cluster headache (drCCH), which remains a safe and well-tolerated technique. The occurrence of contralateral attacks and isolated autonomic attacks in nearly 50% of ONS responders may have therapeutic and pathophysiological implications. They have showed at least a 90% improvement with 60% becoming pain-free for prolonged periods. Two patients did not respond or described mild improvement. Intensity of residual attacks is not modified by ONS. 29% were able to reduce their prophylaxis.⁷

In a double-blind placebo-controlled study, done by Ambrosini A et al. on cluster headache (CH), where they included Sixteen episodic cluster headache (ECH) and seven chronic cluster headache (CCH) patients; results showed 85% patients became attack-free in the first week after the injection compared to none in the Placebo-group (P=0.0001), remained attack-free for 4 weeks (P=0.0026). Remission lasted between 4 and 26 months in five patients. A single suboccipital steroid injection completely suppresses attacks in more than 80% of CH patients. This effect is maintained for at least 4 weeks in the majority of them.⁵

In a study by Afridi SK et al. on Greater occipital nerve (GON) injection in primary headache syndromes in Pain journal in 2006; showed Twenty-six of fifty-seven injections in 54 migraineurs yielded a complete or partial response which lasted for the partial response a median of 30 days. For cluster headache 13 of 22 injections yielded a complete or partial response lasting for a median of 21 days for the partial response. They opined Tenderness over the GON area was strongly predictive of outcome, although local anesthesia after the injection was not. The presence or absence of medication overuse did not predict outcome. Apart from two patients with a small patch of alopecia the injection was well tolerated. They concluded as that GON injection is a useful tool in some patients that provides interim relief while other approaches are explored. It is remarkable that in all conditions in which an effect is observed the response time so much exceeds the local anesthetic effect that the mechanism of action may well be through changes in brain nociceptive pathways.⁴

Conclusions: Occipital Nerve Block is an effective mode of management in patients with Chronic headaches. May be recommended to patients with moderate to severe chronic pain that has not responded to conventional treatment

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