

A Comparison of Pain Control Between Occipital Nerve Block and Occipital Nerve Radiofrequency; A Retrospective Cohort Study



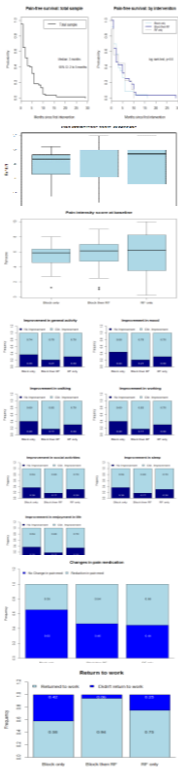
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Introduction:

The greater occipital nerves and lesser occipital nerves are primarily derived from C2 (variable origins from C1, C3, and C4). An anesthetic blockade is considered to have its clinical effect by reducing pain afferents to the cervical trigeminal nucleus caudalis ⁽¹⁾. The exact mechanism of pulsed radiofrequency ablation is yet to be elucidated. Inan, N et al. conducted a study on 78 migraine patients during 2012-2014. The study revealed that repetitive greater occipital nerve blocks with bupivacaine significantly decreased levels of negative symptomatic daily headaches, duration and VAS scores in migraine patients. Patients who did not respond to oral prophylactic agents and patients who had not taken medical prophylaxis had similar responses ⁽²⁾. Comparable study results are shown by Okmen, K et al. who blocked the greater occipital nerve using 2ml of 0.5% Bupivacaine and recognized that it is an effective treatment for migraine ⁽³⁾. A randomized double-blinded comparative study done by Cohen, SP et al. supported the use of occipital nerve pulsed radiofrequency ablation for managing migraine with occipital nerve tenderness ⁽⁴⁾.

Methodology:

A single center, retrospective cohort study was conducted with the inclusion of all consecutive patients who were admitted to Allevio Pain Management Clinic during the period of January 01, 2014 to December 31, 2017. Patients underwent one of three types of pain management interventions: Occipital nerve block, Occipital nerve P-RF or Occipital nerve block followed by P-RF. The particular time frame was chosen to incorporate potential seasonal changes in neuralgia frequency. Patients included in the cohort study fit the ICHD-3b definition of occipital neuralgia. Patients that received occipital nerve blocks as the sole treatment were offered the option of radiofrequency ablation but declined. Patients that underwent radiofrequency ablation solely had occipital nerve blocks performed at an outside clinic by landmark guidance.



Results:

At Allevio Pain Management Clinic, 66 study patients underwent interventional treatment from 2014 to 2017. Of these 66 patients, 25 had Occipital nerve blocks, 10 had Occipital nerve P-RF ablations, and 31 had Occipital nerve blocks followed by P-RF. The compilation of 66 charts was reviewed and 60 patients responded to the questionnaires. The median time between the intervention and the follow-up was 17 months (IQR: 11 - 23.5) for the total sample and data was similar between groups. The longest recorded follow-up time was 40 months. At the time of intervention, 73% of the sample were not retired: 83% in the nerve block group, 61% in nerve block followed by RF group and 89% in the RF group. Of the non-retired patient sample, 55% returned to work following the intervention. More patients returned to work after the nerve block followed by RF, compared with the group of patients who solely had nerve block (94.1% vs. 57.9%, non-adjusted $p=0.019$). The median pain-free period was 3 months. Across the pain interference domain, the majority of the patients in the group of "Nerve block followed by RF" reported clinically meaningful improvements, however, differences failed to reach statistical significance. Regression analysis adjusted for the baseline pain score revealed that patients who underwent nerve block followed by RF procedure had a better likelihood of reporting clinically meaningful improvement compared to the patients who solely had nerve block (OR: 2.33, 95% CI: 0.68-7.98).

Conclusion:

In summary, our study shows a combined greater and lesser pulsed radiofrequency ablation technique provides substantial benefit in return to work and reduction in narcotic consumption.

References:

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