

CAN PULSED RADIOFREQUENCY OF THE OCCIPITAL NERVES CAUSE SEDATION?

A NEW PERSPECTIVE OF A CLASSIC TECHNIQUE

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Background & aims: Pulsed radiofrequency (PRF) of the occipital nerves (greater & lesser GON & LON), is a minimally invasive technique for chronic headache management, due to its neuromodulative and analgesic properties.

Due to the clinical observation of patients' sedation during the procedure, the aim of this study was to investigate whether PRF of the occipital nerves can also cause sedation, using an objective measurement device, such as the Bispectral Index (BIS).

Methods: Patients suffering from chronic headache, not responding to systemic pharmacotherapy, were scheduled for PRF following a standardized protocol (needle 22G, 54 mm, with a 4 mm active tip, PRF of 40-60 V, 2Hz, impedance 150-400 Ω , plateau temperature 42°C, time: 6 min each).

The Bispectral Index device was used to measure sedation (0=deep sedation-100=no sedation) and its value was recorded every minute throughout the procedure.

Results: 22 patients were studied. BIS values were lowered in all but 3 patients during GON stimulation, and in all patients during LON stimulation. Values of decline compared to baseline ranged between 0-23 (median 8.5) for GON, and 1-27 (median 14) for LON, with LON decline being significantly lower ($p < 0.05$). BIS values returned to normal shortly after the intervention.

No adverse effects were recorded throughout the procedure.

Conclusions: Pulsed radiofrequency of the occipital nerves and especially of the LON led to mild sedation in all patients.

It seems that the action of PRF is more complex, possibly involving action on the dorsal horn and on the inhibitory pain pathways, including endogenous opioids.

Further studies are required in order to investigate this effect and clarify the exact mode of action of pulsed radiofrequency, especially on cranial nerves.

References:

Chua NH, Vissers K, Sluifje M. Pulsed radiofrequency treatment in interventional pain management. Mechanisms and potential indications. A review. *Acta Neurochir* 2011;153:763-771

