

COMBINATION OF TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS) AND OCCIPITAL NERVE BLOCK IN REFRACTORY CLUSTER HEADACHE

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Abstract: Cluster headache (CH) can be extremely resistant to medical treatment. There are no prognostic signs that can previously determent persistence and resistance to medical treatment. We report on medical treatment-resistant cluster headache that relieved with transcutaneous electric nerve stimulation treatment followed with occipital nerve block (ONB) method. A 39-year-old male patient that was diagnosed with a cluster headache that was resistant to a combination of the highest tolerated drug dose of verapamil, valproic acid, and oral methylprednisolone. Due to its resistance to medical treatment for one month, in addition, treatment with transcutaneous electric nerve stimulation and following (ONB) showed sudden and permanent control of headache.

Key words: cluster headache, nerve block, transcutaneous electric nerve stimulation, refractory cluster headache, occipital nerve.

INTRODUCTION

(CH) which is also known as trigeminal autonomic cephalgia represents the most common type of primary headache. (CH) earned clinical concern because it tops the list of severe headaches so early and accurate diagnosis will reduce the patient suffering, accurate diagnosis and treatment are vital. Cluster headaches are a unilateral headache with at least one autonomic symptom ipsilateral to the headache. These headaches occur between every other day up to eight times a day. They usually occur at approximately the same time of day, most often at night. Most patients are episodic, with daily attacks for weeks to months, followed by a remission for months to years.

CASE PRESENTATION

We report on a 39-year-old male patient that was diagnosed in July 2002 with (CH). Cluster headache

diagnosis was made according to the International Classification of Headache Disorders (ICHD-III).

No previous history of head trauma or meningitis. His attacks were right-sided periorbital and 2-3 attacks per day lasted for a proximal 60 days. He is on anti-TNF α as he was diagnosed with ankylosing spondylitis, then one year later he experienced the CH bouts, severe insomnia was the cardinal concomitant feature.

In 2004 and 2005 years he reported right-sided cluster headaches that lasted for one month. Brain magnetic resonance imaging (MRI) (Figure 1) and Brain Magnetic resonance angiography (MRI) were normal (Figure 2). Prophylactic medical treatments in most attacks where verapamil 120 mg/day, valproic acid 1000 mg/day and methylprednisolone 40 mg/day. On attacks using Sumatriptan 6 mg subcutaneous and Oxygen inhalation.

Remission period from the year 2005-2010 with no attack. In February 2010 after maxillary sinusitis

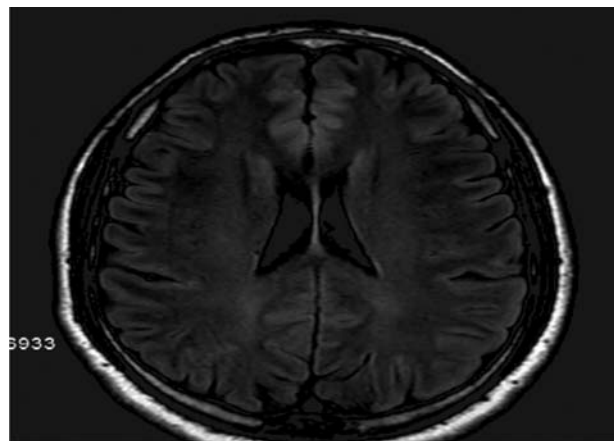


Figure 1. Normal Brain MRI. Axial plane FLAIR sequence



Figure 2. Normal Brain MRA angiography.
No stenosis or sign of vasculitis

operation, headaches and effective sinusitis medical treatment reoccurred but with more severe duration and persistence. In the evaluation of the ear and nose diseases specialist, it was determined that there was no problem in terms of sinusitis. In 2010 attacks repeated for 92 days. Remission period was from the 2010-2014.

In July 2014 right-sided periorbital headache lasted for approximately 80 days. Lamotrigine 400 mg/day, verapamil 240 mg/day was used for prophylaxis and naproxen 750 mg for attacks.

In October 2018 right-sided CH attacks lasted more than 50 days. Verapamil and valproic acid combination and methylprednisolone oral treatment showed poor results. Medical treatment of all CH episodes lasted at least 60 days or longer and during these medical prophylaxes, CH bouts repeated frequently. We decided to switch to the TENS method in search of a more effective solution for these verity and frequency of CH attacks. Transcutaneous electrical nerve stimulation (TENS) is a non-invasive peripheral stimulation technique used to relieve pain. During TENS, pulsed electrical currents are delivered across the intact surface of the skin to activate underlying nerves.

After right-sided (TENS) ophthalmic branch dermatome stimulation on the second day, he reported dramatic relieve in pain that was more than 1/10 relieve on the pain scale. The patient was recommended to use the TENS device 30is pulse width, 12.000 Hz frequency and 4 mA current intensity for a fixed period of 20 minutes on the right periorbital area (1). TENS device dual-channel LT 3060 was used. In the initial phase, pain relief was 1-2/10 on the pain scale. After 16 days, CH reoccurs and after oral methylprednisolone 50 mg/day, right side occipital nerve block with local bupivacaine % 0.5 and 2 mg dexamethasone (2, 3), pain control was fully achieved. In this patient, this is the

first time that complete control of CH pain was achieved in the second week. To date, the patient has not experienced pain.

DISCUSSION

CH may be resistant to medical treatment. In these patients, medical treatments are frequently changed during the treatment course. These patients have to receive multiple medical treatments and often face drug side effects. Due to multiple drug use and side effects our patient, was able to tolerate the above-mentioned doses. In this case, we have discussed the possibility of the reduction of refractory CH with TENS and occipital nerve block procedure as a treatment method in patients resistant to medical treatment. In the literature, we found that this method does not provide a clear frame work for head pain treatments (3, 4, 5). In our case probably underlying disease as may be the reason for refractory cluster headache. Because TENS was the short-lasting idea of adding occipital nerve blockade have provided full control of pain. The patient is still experiencing a painless life. With this combination treatment, we were surprised to see that the pain is completely controlled in very short time duration.

CONCLUSION

TENS has shown to be effective and safe in drug-resistant headache prophylactic treatment but most of the published clinical reports are limited to clinical case reports. ONB also has been shown to be effective in refractory CH. In our case, TENS and ONB achieved fast painkilling but it was a short time in the case of TENS compared to ONB. With this case, medical treatment-refractory CH patients suggest that two different methods of combination may work in pain control.

Abbreviations:

AS — ankylosing spondylitis

CH — cluster headache

Hz — hertz

ONB — occipital nerve block

TENS — transcutaneous electric stimulation

TNF- α — Tumor necrosis factor-alpha

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Sažetak

KOMBINACIJA TRANSKUTANE ELEKTRIČNE STIMULACIJE NERAVA I BLOKA OKCIPITALNOG NERVA U LEČENJU REFRAKTORNIH KLASTER GLAVOBOLJA

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Klaster glavobolja može biti izuzetno otporna na lečenje. Ne postoje prognostički znaci koji mogu prethodno odrediti upornost i otpornost na medicinsko lečenje. Predstavljamo klaster glavobolju otpornu na lečenje koja je redukovana transkutanim tretmanom električne stimulacije nerva praćenim blokadom okcipitalnog nerva. Radi se o pacijentu, 39 godišnjem muškarcu, sa dijagnostikovanom klaster glavoboljom otpornom na kombinaciju najveće tolerisane doze vera-

pamila, valproične kiseline i metilprednizolona. Zbog otpornosti na medicinski tretman u roku od jednog meseca, rađen je dodatni tretman transkutanim električnom stimulacijom nerava i blokadom okcipitalnog nerva, koji su pokazali iznenađujuću i trajnu kontrolu glavobolje.

Ključne reči: klaster glavobolja, nervni blok, transkutana električna stimulacija nerava, refraktorna klaster glavobolja, okcipitalni nerv.

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