Migren baş ağrısında büyük oksipital sinir bloğu: 10 hastanın ön sonuçları

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ÖZET

Klinik kullanımda lehte sonuçları olmasına rağmen, migren tedavisinde büyük oksipital sinir bloğunun (GON) etkisine dair az sayıda kanıt bulunmaktadır. Bir ön çalışmayla migren ataklarının önlenmesinde % 0,5 bupivakain ile GON bloğu uygulamasının etkisini değerlendirdik. Uluslararası baş ağrısı birliği kriterlerine göre migren tanısı alan 10 hasta altı aylık bir çalışma ile değerlendirildi. Tedavi ve takip süresince hastalara profilaktif tedavi verilmedi. Hastalara 1,5 ml-% 0,5 bupivacaine ile 1 hafta arayla 3 kez GON bloğu tekrarlandı. Takiben çalışma süresince bloklar klinik cevaba göre maksimum 5 kez tekrarlandı. Klinik değerlendirme aylık total ağrı indeksi (TPI) ile 1 ay içerisindeki migren atak sıklığı ve analezik tüketimi kaydedilerek yapıldı. İlk ayın sonunda hastaların ortalama TPI değeri 308,3±55,2'den 114,1±4,7'e düştü. Tedavi öncesi değerleri ile karşılaştırıldığında ilk ay süresince ortalama migren atak sayıları 12,6±4,8'den 4,9±1,8'e, analjezik tüketimleri ise 11,0±3,4'den 4,9±1,1'e düştü ve bu düşüşler 6 ay süresince sürdü. Tedavi süresince vakaların hiçbirisinde ciddi yan etki görülmedi. Sonuçlarımız, ön çalışma niteliğinde olup, az sayıdaki hastadan elde edilmiş olmakla birlikte, 1,5 ml-%0,5 bupivakain ile GON blokajının migren ataklarının önlenmesinde etkili olduğunu ve GON blokajının ciddi bir yan etkisi olmadığını göstermektedir.

Anahtar Kelimeler: Migren, büyük oksipital sinir bloğu, bupivakain

SUMMARY

Greater occipital nevre block in migraine headache: Preliminary results of 10 patients

Despite a favorable clinical experience, there are little evidence existing about the effects of greater occipital nerve (GON) block in migraine treatment. In an open, preliminary trial we evaluated the use of GON block with 0,5 % bupivacaine, in prevention of migraine attacks.Ten women suffering from migraine diagnosed according to International Headache Society criteria were evaluated in a six-month study period. During the treatment and entire follow-up period, the patients avoided prophylactic therapy. Patients were given 3 times GON blocks with 0,5 % bupivacaine one week intervally. Afterwards blocks were repeated for a maximum 5 sessions depending on the clinical response. Clinical evaluation was assessed using a monthly Total Pain Index (TPI), and recording of the number of migraine attacks and analgesic consumption per month. At the end of the first month, TPI reduced from 308,3±55,2 to 114,1±4,7 (p=0,005). When compared to the values before treatment, it was seen that during the first month mean number of migraine attacks reduced from 12,6±4,8 to 4,9±1,8, mean analgesic consumption reduced from 11,0±3,4 to 4,9±1,1, and these reductions lasted up to six months. During the treatment no severe advers effect was seen in all cases. Although preliminary and obtained on a limited number of patients, our results show that the GON block with 1,5 ml of 0,5% bupivacaine does not have any severe advers effect and is effective in the prevention of migraine attacks.

Key words: Migraine, greater occipital nerve block, bupivacaine

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Introduction

Patients with migraine may have pain of both the posterior region of the head innervated by the C2 spinal root and anterior region innervated by the trigeminal nerve. This situation is explained by the result of the afferent fibers of the three superior cervical roots converge on the neurones of the trigeminal spinal nucleus in the upper cervical spinal cord (Kerr 1961, Bartsch and Goadsby 2005). So, possible that a disturbance in this region can cause pain in the fronto-oculotemporal region and occipital region. Greater occipital nerve (GON), which derives most of its fibres from the C2 dorsal root, is the main sensory nerve of the occipital area (Bogduk 1982). Although the indications for the use of the GON injection are not clear, it has been used in the treatment of cervicogenic headache, cluster headache, occipital neuralgia and migraine headache (Anthony 2000, Bovim and sand 1992, peres et all. 2002). There are limited number of studies about the effects of GON block on migraine headache. In an open, preliminary trial we evaluated the use of GON block with 0,5 % bupivacaine, in prevention of migraine attacks.

Methods

In this prospective, preliminary study 10 women suffering from migraine diagnosed according to International Headache Society (IHS) criteria (IHS 2004) were evaluated in a six-month period, after approval by the ethics committee. Written consent was obtained from the patients after information was provided on the study.

Patients who have received greater occipital nerve blocks in the past and who are pregnant or lactating were excluded from the study. During the treatment and entire follow-up period, the patients avoided prophylactic therapy. Patients were given 3 times GON blocks with bupivacaine one week intervally. Afterwards blocks were repeated for a maximum 5 sessions depending on the clinical response. The blocks were performed with 1,5 ml of 0,5 % bupivacaine from 2 cm lateral and 2 cm inferior to the external occipital protuberance in all cases. The injection site was then massaged to spread the solution. 15 minutes after injection, anesthesia in the distribution of the injected nerve was evaluated with the pinprick test. Seven charts were given to the patients to make a daily record of the frequency and severity of headache for one month prior to and 6 months following the injection.

Treatment was assessed using a monthly Total Pain Index (TPI), and recording of the number of migraine attacks and analgesic consumption per month. TPI was calculated using the formula (D1x1)+(D2x2)+(D3x3), in which D=The number of headache hours in a month, 1=slight pain, 2=moderate pain, limiting normal activity but not

Tablo 1. Patient characteristics before the treatment.

Patients	Age (year)	Migraine duration (year)	Attack frequency (last month)	No of analgesic doses (last month)	Tenderness around the GON	TPI (last month)
1	45	20	18	15	+	375
2*	48	10	15	12	+	365
3	41	8	12	12	+	322
4	55	25	15	15	+	315
5	50	6	8	8	+	255
6	52	30	15	10	+	290
7	47	8	10	10	-	325
8	55	12	20	15	+	373
9	50	18	7	7	+	237
10	46	15	6	6	-	226

**Migraine with aura*
GON; greater occipital nevre, TPI; total pain index

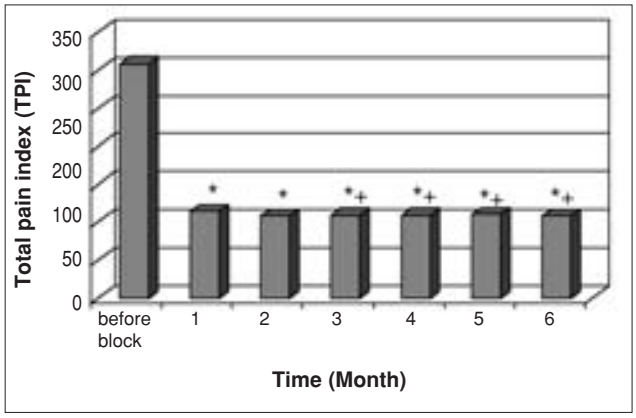

Figure 1. Mean total pain index (TPI) values.
* p<0.05, comparison with the value before treatment
+ p<0.05, comparison with the 1st month value

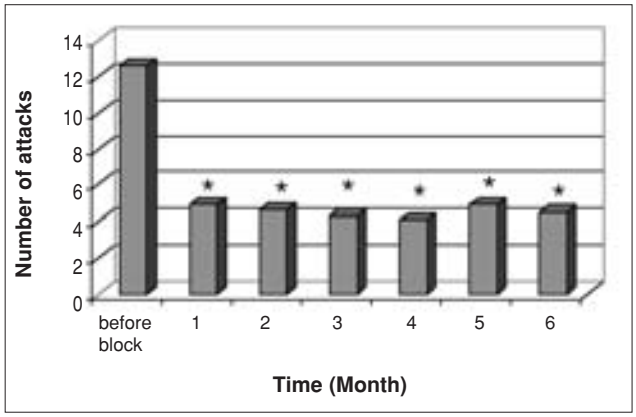

Figure 2. The mean number of attacks per month
* p<0.05, comparison with the value before treatment

causing the subject to go to bed, 3=strong pain, limiting all activity and causing the subject to be bedridden. Patients were considered responsive to the treatment when the TPI index decreased by at least 50% in the first month after treatment.

Results

Patient characteristics were documented in Table 1. A total of 74 injections were performed on 10 patients. All these patients (100%) were responsive to the treatment and this situation was maintained for the entire period of observation. At the end of the first month, mean TPI reduced from 308,3±55,2 to 114,1±4,7 (p=0,005) (Figure 1). When compared to the values before treatment, it was seen that during the first month mean number of migraine attacks reduced from 12,6±4,8 to 4,9±1,8 (p=0,005) (Figure 2), mean analgesic consumption reduced from 11,0±3,4 to 4,9±1,1 (p=0,005) (Figure 3), and these reductions lasted up to six months. During the treatment no serious adverse effect related to GON block was seen in any case. Only one patient had a vaso-vagal syncopal attack during the procedure.

Discussion

Our results show that GON block with 1,5 ml of 0,5% bupivacaine reduced number of migraine attacks and analgesic consumption per month and also all patients demonstrated a response to the block without any severe adverse effect.

There is no current standard of practice in the management of migraine treatment with GON block. In previous studies lidocaine with or without a corticosteroid have been used (Anthony 1992, Bovim and Sand 1992, Ashkenazi and Young 2005, Afridi 2006). More recently, Caputi (Caputi and Firetto 1997) injected bupivacaine alone into both GON and supraorbital nerves and concluded that the technique described may be a new nonpharmacological treatment of migraine since it does not have any negative side effects and is easily performed. There is neither standard of practice using GON block nor currently guideline regarding patient selection or clinical features predictive of a successful outcome. However, Afridi (Afridi 2006) found that tenderness around the region of the GON was significantly associated with a positive response to the injection. Afridi also found that there was no association between response and level of anesthesia following injection and analgesic overuse. These findings suggest that tenderness may be useful in selecting out patients who are more likely to response and GON injection is effective in patients with overuse medication. Additionally GON injection may be helpful during withdrawal of medication. In our study 8 patients (80%) had moderate tenderness around the GON and this may be related to the high percentage of patient satisfaction and success of treatment.

The GON block is technically easy to perform and has a low incidence of neurological complications and adverse effects. It is generally without side effects. In our study there was no serious adverse effect reported. Only one patient had a vaso-vagal syncopal attack during the procedure. In a study, total of 116 GON injections were recorded with 101 primary headache syndromes patients (Afridi et al.2006). Relatively few adver-

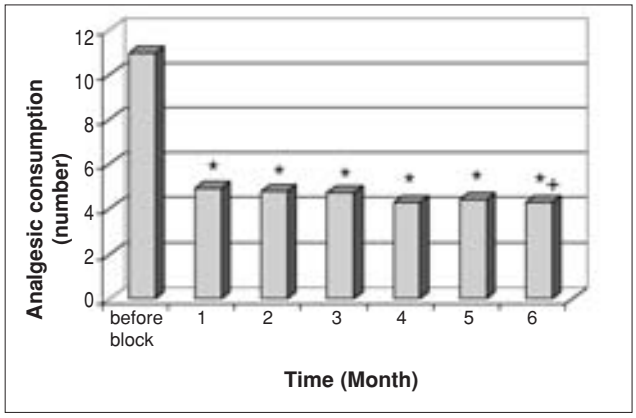

Figure 3. Mean analgesic consumption per month
* p<0.05, comparison with the value before treatment
+ p<0.05, comparison with the 1st month value

se effects, including one vaso-vagal syncopal attack during the procedure, three transient dizziness following the injection, three typical headache triggered immediately by the injection, and two alopecia around the injection site were reported in this study. Shields et al. (2004) used the same block for various headache indications in 100 patients and reported two alopecia and cutaneous atrophy. In both studies same local anesthetic and corticosteroid combination (80 mg methylprednisolone in 2-3 ml of 2% lidocaine) had been used for GON block. Although there is no standardized procedure regarding GON block, the nerve is usually infiltrated with a local anesthetic (lidocaine, bupivacaine, or both). A corticosteroid is sometimes added. It has been stated that relief of headache may be prolonged after their use (Anthony 1992). In our study we haven't seen any side effect, when we compared to these reports. We think that increased comlication in those studies may be related to the corticosteroid, where we did not use for GON block. We suggest that the risk-benefit assessment should be made for using corticosteroid for headache treatment with GON block.

There are limitations of this preliminary study. It was performed in a small series of patients and additionally the technique might be improved by the use of a nerve stimulator to locate the GON which has anatomically variations.

Although preliminary and obtained on a limited number of patients, our results show that the GON block with 1,5 ml of 0,5% bupivacaine for prevention of migraine attacks is a safe, simple, and effective technique without severe adverse effects. This preliminary study should be followed by a larger controlled trial to confirm these findings.

References

Afridi S.K, Shields K.G, Bhola R, Goadsby P.J: Greater occipital nevre injection in primary headache syndromes-prolonged effects from a single injection. Pain 2006;122:126-129.

Anthony M: Headache and the greater occipital nevre. Clin Neurol Neurosurg 1992;94:297-301.

Anthony M: Cervicogenic headache: prevalence and response to lokal steroid therapy. Clin Exp Rheumatol 2000;18:59-64.

Bartsch T, Goadsby PJ: Anatomy and physiology of pain referral in primary and cervicogenic headache disorders. Headache Curr 2005;2:42-48.

Bogduk N: The clinical anatomy of the cervical dorsal rami. Spine 1982;7:319-330.

Bovim G, Sand I: Cervicogenic headache, migraine without aura and tension-type headache.

Diagnostic blockade of the greater occipital and supraorbital nerves. Pain 1992;51:43-48.

Caputi CA, Firetto V: Therapeutic blockade of greater occipital and supraorbital nerves in migraine patients. Headac he 1997;37:174-179.

Headache Classification Subcommittee of the International Headache Society (IHS). The International Classificati on of Headache Disorders, 2nd edition.Cephalalgia 2004; 24 (Suppl 1): 9-160

Kerr FWL: A mechanism to account for frontal headache in cases of posterior fossa tumours. J Neurosurg 1961;18:605-609.

Peres MFP, Stiles MA, Siow HC, Rozen TD, Young WB, Silbers tein SD: Greater occipital nerve blockade for cluster headache. Cephalalgia 2002;22:520-522.

Shields K.G, Levy M.J, Goadsby P.J: Alopecia and cutaneous atrophy after greater occipital nerve infiltration with corticosteroid. Neurology 2004;63:2193-2194.