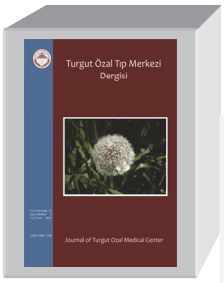

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Interscalen Block Application in Patients with Herpes Zoster

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Abstract
Reactivation of the latent virus at the dorsal nerve roots and ganglia in patients with chickenpox history may result in quite painful, itchy, and blistering rash on a limited area of the sensory nerve and this condition is called Herpes Zoster or Zona. Herpes Zoster may resolve spontaneously in one or two weeks or course of disease may also be serious in elderly and immunocompromised individuals. Although providing an effective treatment is not always possible, sympathetic nerve block, antiviral agents, analgesics, and opioid drugs might be used. We believe that, sympathetic nerve blocks, with their inhibitory effects on the formation of the post-herpetic neuralgia, are one of the effective treatment modalities especially in patients with insufficient improvement after medications. In this case report, we aimed to present the use of interscalene brachial plexus nerve block to treat a patient with Herpes Zoster in the shoulder area.
Key Words: Herpes Zoster; Bupivacaine; Brachial Plexus.

Herpes Zosterli Hastada İnterskalen Blok Uygulanması

Özet
Daha önceden suçiçeği geçirmiş kişilerde arka sinir köklerinde ve ganglionlarda latent haldeki virüsün reaktivasyonu sonucu, ilgili sinirin duyusal alanıyla sınırlı, oldukça ağrılı ve kaşıntılı, vezikülo-büllöz döküntülü lezyonlarla karakterize tabloya Herpes Zoster veya Zona denilir. Herpes Zoster bir veya iki haftada kendiliğinden düzelebileceği gibi, özellikle yaşlılarda ve immün sistemi baskılanmış kişilerde ciddi seyredebilir. Herpes Zoster tedavisi kolay olmayıp her zaman etkin şekilde sağlanamamakla beraber, sempatik sinir bloğu, antiviral, analjezik ve opioid gibi ilaçlar kullanılabilmektedir. Özellikle ilaç tedavisinden yeterince fayda görmeyen hastalarda, meydana gelebilecek Postherpetik Nevralji oluşumunu önleyici etkileri de göz önüne alındığında sempatik sinir bloğu uygulaması etkin bir tedavi yöntemi olarak kullanılabileceği kanısındayız. Bu olgu sunusunda, omuz bölgesinde Herpes Zoster tutulumu olan hastanın interskalen blok ile tedavisini sunmayı amaçladık.
Anahtar Kelimeler: Herpes Zoster; Bupivakain; Brakiyal Pleksus.

INTRODUCTION

Herpes Zoster (HZ) or shingles is the clinical picture in which the latent virus in the dorsal root ganglia is reactivated in people infected with Varicella-Zoster (VZ) chickenpox, especially in adults (1). HZ is characterised by quite painful vesiculobullous rash lesions limited to the right or left of the body and its incidence in the population is between 2,2% and 3,4% (2). The risk of HZ is 10-25% among adults with 95% VZ seropositivity and 50% of these patients are above 85 years of age (3).

The following conditions which weaken the immune system, especially in elderly, increase the risk of HZ: organ transplantation, human immunodeficiency virus infection, malignant disease history, diabetes, chemotherapy and radiation therapy and chronic use of corticosteroids (3, 4).

While antiviral, non-steroidal anti-inflammatory (NSAID), and opioid medications can be used in acute HZ treatment, sympathetic nerve block applications in the area of lesions and pain treatment are known to be effective methods in preventing post-herpetic neuralgia (PHN) (1, 3). If pain persists 1-3 months after acute attacks, it is defined as PHN, which is seen in 20-25% of such patients (1, 2). In this case report we aimed to present pain treatment for the patient with HZ involvement in the shoulder and peripheral nerve block administration by placing a catheter to the interscalene region to prevent the PHN development.

CASE REPORT

A seventy-three-year-old female patient was admitted to our clinic with pain and itchy skin lesions on the right shoulder continuing for 12 days. The patient diagnosed with HZ received acyclovir (800 mg/5 times in a day) and dexketoprofen (50 mg/ 2 times in a day) for 7 days. Because of suffering from severe pain, fentanyl (Durogesic® Transdermal Flaster) was added to the treatment in last 3 days. Considering its insufficiency, fentanyl doşe was increased but since the patient could not tolerate the dose due to its side effects, this application discontinued. There was no history of any systemic diseases other than hypertension. On physical examination, we observed painful lesions around the right shoulder extending to the forearm extending, in the C5-6 dermatome region. The lesions had vesicles and bullae and they were sensitive to touching. Having received inadequate response to medical therapy, we

planned to apply interscalene blocking in order to prevent the development of PHN. After obtaining patient's full consent, we took the patient to the regional anaesthesia room. We performed standard monitoring procedure and then applied 250cc of 0.9% NaCl through venous catheter in the supine position, in which the arm was stretched towards the knee and the head faced the opposite side. Having achieved standard sterile conditions, we applied analgesics (lidocaine 0,1%) to the targeted area. Guided by ultrasonography (SonaSite S-Nerve, USA) and neural stimulation (Stimuplex HNS 12, Braun, Germany), we reached to the brachial plexus in the interscalene range with a 18 gauge 5 cm neural stimulation needle (Contiplex® S Ultra, Braun, Germany) and placed the 20 gauge 40 cm catheter (Contiplex® S Ultra, Braun, Germany) to stay 3 cm inside and fixed after tunnelising it under the skin (Figure 1). After confirming the catheter location, we performed the aspiration test in small volumes and applied 8 mL of 0.125% bolus bupivacaine (Marcaine® 0.5%, AstraZenca, Istanbul). Visual analog scale (VAS) pain assessment showed a VAS score of 7 before the injection but this score decreased down to 3-4 and then to 2 within 10 and then 20 minutes, respectively. There was no motor loss in the clinical examination and we started to administer 0.125% bupivacaine 2 mL hr-1 infusion revealed with a continuous infusion pump (Accufuser® Woo Young Medical, Korea). Due to the improvement of lesions around the shoulder (Figure 2) and a VAS score below 3, we removed the catheter by proposing NSAID in 10th day. In the follow-up a month later,it was seen that the shingles and pain-related complaints were cured completely.

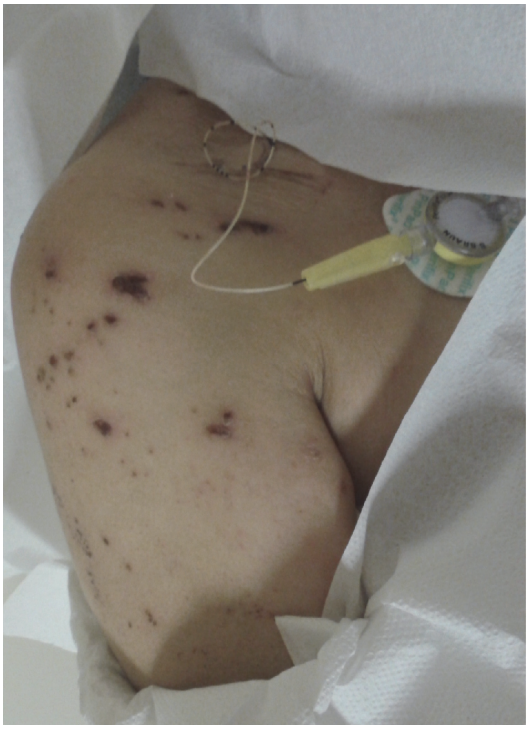

Figure 1. Preoperative view of the patient with active zona lesions and cathater in the interscalene range.

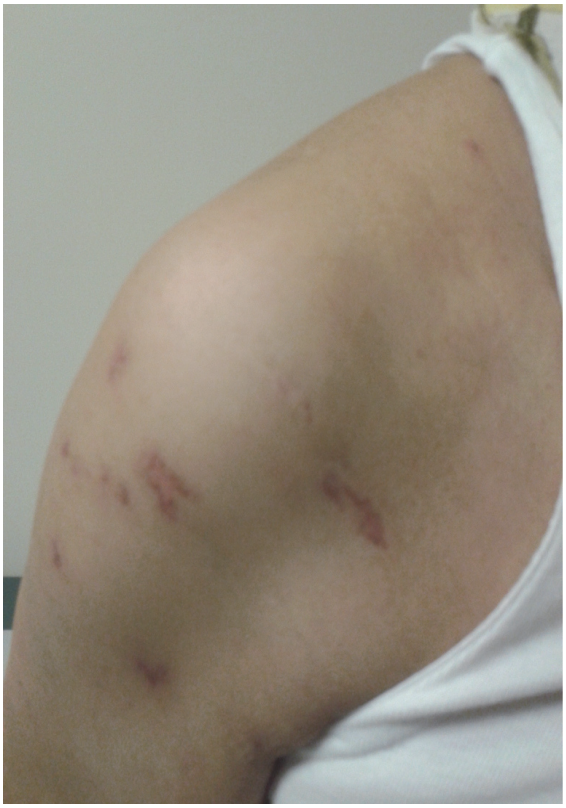

Figure 2. The view of the imporved lesions after the treatment.

DISCUSSION

In acute HZ most of the patients complain from pain. Although pain differs from patient to patient, it typically appears several days before the rash and continues along with the rash. Pain often ends with the recovery of rash. In acute HZ with the reactivation of the virus in the latent phase, inflammation occurs in axonal sheath, peripheral regions and the ganglia with neuronal damage. Inflammation and neuronal damage cause abnormal chemical and anatomical connections between primary afferent (sensory) neurones and sympathetic postganglionic neurones. The adrenergic receptor activation caused by various reasons in primary afferent neurones and sympathetic system results in pain (5).

The mechanism behind PHN and the contribution of the sympathetic nervous system are not fully known. According to one hypothesis, the sympathetic hyperactivity caused by the effects of acute inflammation results in neuronal ischemia by reducing the blood flow in neurones. The oedema and increased intraneuronal pressure caused by ischemia further reduces intraneuronal flow and eventually causes irreversible nerve damage (1). If tissue damage is not serious and inflammation rapidly recovers, PHN does not develop (5). To prevent the formation of PHN, corticosteroids, nerve blockage and antiviral drugs can be used. Although preventive strategies such as vaccine is

recommended to groups at risk, there is no definitive method (3).

It has been suggested that, compared to standard treatments such as antiviral and pain medications, sympathetic nerve block to be implemented within the first 2 weeks of the onset of rashes, reduces acute pain effectively and quickly by preventing repetitive vasoconstriction that causes pain and neuronal damage while it is also effective in preventing the formation of PHN (6, 7). As the severity of pain increases, the risk of developing PHN also increases in HZ. Sympathetic nerve block reduces the duration and severity of pain; in this way, it also reduces the incidence and severity of PHN (5).

A retrospective study conducted among 483 people has shown that HZ symptoms lasted 1-21 days. The patients in this study were treated with sympathetic nerve blocks; after follow-up period of 6-12 months, only 5% of the patients developed PHN, which shows the effectiveness of sympathetic nerve blocks to prevent PHN (6) . Another study reports a PHN development risk of 14% despite sympathetic nerve blocks (8). Although our patients had severe pain, PHN did not develop during the follow-up for approximately 2 months.

As far as analgesic efficacy is concerned in acute HZ, there is no significant difference between administering sympathetic nerve blocks 10 days before and 10 days after the onset of rash; however, sympathetic nerve blocks are known to be effective in preventing PHN (9).

Winnie et al. (7) has claimed that success of sympathetic block treatment after the onset of rash is lower and its success rate gets lower as the administration of sympathetic nerve blocks is later. Another study which compares 6-8 epidural infusion application in intervals with continuous epidural infusion conducted among 178 patients with mild and severe lesions, who were given 0.5% bupivacaine, reports significantly lower continuous epidural infusion treatment duration (36% versus 27%) and severe HZ lesion rates (73,3% versus 44,9%) (10).

Another study on 4 patients with PHN has shown that applying of bupivacaine in the home environment and patient controlled epidural analgesia are effective and convenient methods in reducing pain (11). In another study on 2000 patients, which administered antiviral therapy along with continuous epidural analgesic infusion, duration of pain was shortened and PHN and excitement induced allodynia incidences were reduced (5).

Antiviral drug treatment reduces VZ virus replication in acute HZ while it also accelerates pain improvement and reduces PHN duration and incidence (4). Although corticosteroids are used in acute HZ, no prevalent efficacy was observed in treatment of pain; however, it is known that it shortens the duration of analgesic applications (2).

A study that used transcutaneous electrical neurostimulation, one of the non-pharmacological methods in HZ treatment, has reported that patients needed less pain medications and transcutaneous electrical neurostimulation was a more effective method in preventing PHN in comparison to treatment with antiviral drugs (12).

In the acute period of HZ, sympathetic blocks as well as analgesic and antiviral drugs have been reported to be better in treating pain (13).

In our case, there were no additional diseases that would lead to the formation of HZ. Initially, we started to give antiviral drugs and NSAIDs followed by additional opioids but, seeing that these methods did not work on our patient, we discontinued all these treatments and decided to perform interscalene block treatment. Hoping that it would be long-lasting and more effective, we applied bupivacaine through infusion. We did not observe any side effects or complications related to the procedure or treatment.

Considering its effect in preventing PHN, we believe that sympathetic nerve blocks administered by continuous bupivacaine infusion is an effective method in treating acute HZ especially when antiviral drugs, analgesics and opioids fall short.

This case report was presented as a poster presentation at the 47th National TARK Congress (06-10 November 2013, Antalya, Turkey; P-573).

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