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TREATMENT OF SEVERE ACUTE PAIN DURING HERPES ZOSTER RASH WITH GANGLIONAL AND NEURAL BLOCK AND THUS PREVENTING POSTHERPETIC NEURALGIA

LEČENJE TEŠKOG AKUTNOG BOLA PRI POSTOJANJU OSIPA HERPES ZOSTERA PERIGANGLIONARNIM I PERINEURALNIM BLOKOM I NA TAJ NAČIN PREVENIRANJE POSTHERPETIČNE NEURALGIJE

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Abstract

Postherpetic neuropathic pain in the region affected with herpes zoster (HZ) rash and in the surrounding area is the most common complication of herpes zoster infection. Risk of developing this condition highly increases with age (in persons over 50 years), due to the severity of pain experienced during or even before HZ rash; it's prevalent amongst females. The aim of pain medicine specialist is to prevent development of severe acute pain into chronic pain.

We treated four patients (two females and two males), with confirmed HZ infection and severe acute pain (Visual Analogue Scale ≥8), resistant to maximal drug therapy, with ganglion and neural block in affected thoracic region (in all cases). We used the same local anesthetic in all cases – 0.25% solution of bupivacain, without any adjuvant. We administered 5-10 ml solution paraspinaly and 3-5 ml for each intercostal neural block, both one segment above and one segment below. After every procedure, patient was monitored for 2 hours. We treated the painful area once a day, for five days.

We got similar results in all four cases and step by step, pain abated completely after five treatments, without complications. All procedures were performed under ultrasound guidance. Moreover, we could exclude application of other drugs against pain after five days. Pain did not return in the following three months.

This pilot study shows very good results in the treatment of acute severe pain and prevention of developing postherpetic neuralgia. The treatment is not expensive, it is safe for application, and the use of ultrasound (as a navigation for peripheral nerve and para-spinal ganglion block) is very useful and highly recommended. Further investigations and larger series of clinical studies are necessary.

Key words

postherpetic neropathy, perineural block, ganglional block, local anesthetic, chronical pain, pain therapy

Ključne reči

postherpetična neuropatija, perineuralni blok, periganglionarni blok, lokalni anestetik, hronični bol, lečenje bola

INTRODUCTION

Acute herpes zoster (AHZ), or „shingles", happen after reactivation of latent varicella zoster virus (VZV), the causative agent of chickenpox (1). Most frequently, the risk factors associated with reactivation of VZV include advanced age, stress (mental or physical), some diseases (i.e. HIV infection), and immunosuppressive treatment regimens which compromise cell-mediated immunity responsible for controlling VZV and thus provoke manifestations of AHZ (2-6). Latent VZV is asymptomatic, but reactivation of the virus into AHZ is manifested clinically by blistering skin eruptions, mostly red and maculopapular, evolving into vesicles, pustules, and crusts over a period of 7 to 10 days (1).

Postherpetic neuralgia (PHN) is the most common, very unpleasant, very painful and sometimes long-lasting complication of herpes zoster [7]. The treatment is very expensive, with a lot of medicines applied in a short time, or sometimes during a long period, and frequently poorly effective [7].

There is a vast majority of consequences of PHN, sometimes associated with severe psychosocial dysfunctions: impaired sleep, decreased appetite, and diminished libido that affect patients' quality of life, normal daily and social activities [7]. Advanced age is most important risk factor, because old persons are more prone to PHN, and have greater risk for complications such as fatigue, anorexia, weight loss, insomnia, depression, difficulty in concentrating, and difficulty to perform daily activities [7]. On the other hand, PHN mainly affects the elderly, many of whom are already treated for comorbidities with a variety of systemic medications and are thus at high risk of drug–drug interactions. Therefore, an efficient and safe treatment with a low potential for interactions is of high importance. Despite increasing incidence of PHN during last decade, PHN is still frequently underdiagnosed and undertreated [1].

For the treatment of localized peripheral and mixed neuropathic pain, the topical analgesic 5% lidocaine medicated plaster (Versatis®, Grünenthal GmbH, Aachen, Germany) [8– 10] is recommended for the first line treatment, especially in fragile and elderly patients when there are concerns regarding side effects or safety of other treatments [10]. It is registered in the USA (as Lidoderm®, Endo Pharmaceuticals, Chadds FORD, PA, USA) and in many European (such as EMLA-euthectic mixture of local anesthetic: 2.5 % Lidocain and 2.5 % Prilocain), Latin American, and Middle Eastern countries. The plaster is approved in approximately 50 countries worldwide for the symptomatic relief of neuropathic pain associated with previous herpes zoster infection. Since the first marketing authorization in 1999 until June 2014, it is estimated that the lidocaine plaster has been prescribed to approximately 20 million patients [11].

The efficacy of PHN treatment with the 5% lidocaine medicated plaster was demonstrated in several randomized clinical studies [12–16]. The treatment of PHN with 5% lidocaine medicated plaster is the only kind of treatment with available clinical data of safety and efficancy in long-term treatment, up to 4 years [17, 18]. Also, the effectiveness, tolerability, and satisfaction of the patient were documented for even 7 years of daily plaster use [19]. A recent publication also reviews the efficancy of the 5% lidocaine medicated plaster in pain management [20].

Unfortunately, 5% lidocaine medicated patch is not approved in Serbia, but minimally invasive procedure of perineural and ganglional block with different kind of local anesthetic is allowed and widespread. Therefore, we decided to treat resistant severe acute neuropathic pain during HZ, with intercostal perineural and ganglional block in the painful area.

MATERIALS AND METHODS

In this pilot study, we treated two females and two males (47-73 years old) with intractable pain, resistant to a conventional pain medical therapy. All patients were treated with five blocks.

In all cases, acute HZ was confirmed on:

Patient	Pain therapy	Basic diagnosis and treatment	VAS before treatment	VAS after treatment	Area ffected with HZ dermatoma
73 years male	Pregabalin, Gabapentin, Morfium, Amitriptylin	Pulmonary neoplasm, chemotherapy	9.3	2.3	Th2-Th6
47 years female	Pregabalin, Phentanyl patches, Gabapentin, Meperidin, Amitriptylin	Renal transplantation, Immunosuppressive therapy	9.6	2.1	Th4-Th9
52 years female	Phentanyl transdermal patches, Gabapentin, Pregabalin, Morfium, Amitriptylin	Renal transplantation Diabetes type I, Immunosuppressive therapy	9.4	2.4	Th5-Th12
68 years male	Phentanyl transdermal patches, Pregabain, Morfium, Amitriptylin	Pulmonary neoplasm	8.6	1.8	Th2-Th6

1. medical history (questionnaire should identify the source of the patient's pain, typically discrete, unilateral and displays an itching, burning, sharp, stabbing or throbbing quality; pain was intermittent, yet enough to interfere with normal daily activities)

2. physical examination (painful area is affected by AHZ infection)

3. standard laboratory tests (antibodies to herpes zoster virus support diagnosis of subclinical herpes zoster infection, especially in the case of zoster sine herpete; other laboratory tests may be useful in confirming a herpes zoster infection, including immunoperoxidase staining, histopathology and the Tzanck smear) [2-4,7,8].

All four patients were immunosuppressed: two were submitted to immunosuppressive therapy after renal transplantation, and other two had pulmonary malignancies, and were submitted to chemotherapy. The mean pain intensity was very high 9.225 despite on third line therapy acute neuropathic postherpetic pain (PHN): morfin, phentanyl, and pregabalin in maximal doses.

Patients were treated once a day in ventral decubitus, with 0.25 % bupivacaine solution [21]. First, we treated paraspinal sympatic ganglions of affected side with 5-10 ml

solution, for each afected level and both one segment below and one of it above [21].Then, we treated intercostal nerve with 3-5 ml solution for each intercostal neural block, both one segment above and one of it below [21]. Procedure was performed under ultrasound identification of the structures, and we had no complications in using this method.

Every time, after procedure, patient monitored during 2 hours: puls, arterial pressure, blood oxygen level, breath- all take notes after 15 minutes. After first procedure, ones daily we monitored blood analysis results - hepatogram, level of fundamental blood ions, glucose, creatinine, carbamide, osmolarity.

RESULTS

All patients had very similar response to the therapy: after the first shot (block) all of them felt pain relief during the first 12-15 hours, but then needed additional medicine support, beside their basic pain therapy.

Following the second treatment, all four patients felt pain relief for almost 20 hours; they could sleep well, for the first time after the beginning of their HZ rash. Additional medicine support was needed 20-21 hours after the treatment.

Pain relief duration was at least 24 hours after the third block, and for the first time patients could endure without additional medicines, therefore basic pain therapy was excluded gradually, during a few days.

Patients didn't have any severe pain after the fourth and fifth shot, so we even had the possibility to gradually exclude all drugs used before. The mean value of VAS after the treatment is 2.15 ($p < 0,001$).

During the next three months patients had no severe pain in the HZ affected area.

DISCUSSION

Acute severe pain during HZ infection is a huge problem to the affected patients and the whole society. One of the aims for pain medicine specialist is to prevent development of chronic, very painful and resistant to treatment PHN from developing into severe acute pain.

The FDA recommended application of the 5% lidocain medical patch (LMP) as the first line therapy for PHN [7, 22, 23]. The Canadian pain specialists have the same opinion of the acute severe pain treatment [24].

Application of the LMP is not possible in countries where LMP is not approved. Also, this minimally invasive procedure for pain relief is approved anywhere, regardless of where the pain specialist works.

Application of the local anesthetic is inexpensive, easy to perform, widely available and mostly effective, as confirmed in lots of publications [7, 24-29]. Local applica tion of the medicine and low toxicity of the anesthetic are also advantages of this treatment. The treatment does not last for a long time, and possibility of drug-to-drug interactions is low.

It is well known that pain has great impact on the quality of life, and locally administered drugs improve it, as shown in a number of studies involving patients with different neuropathic pain statuses [24-29]. A topical therapy with local anesthetics, with proven efficacy and a very limited potential for systemic side effects and interactions with other medication, may be a simple solution to these problems in elderly patients or in patients with lots of medicines in everyday therapy.

By performing the procedure under ultrasound guidance it is almost completely safe and of the utmost effectiveness.

Further investigations and clinical studies of this treatment are still needed.

Sažetak

Najčešća komplikacija herpes zostera (HZ) je postherpetični neuropatski bol u regiji i neposrednoj okolini osipa herpes zostera. Rizik za razvoj ovog stanja značajno raste sa godinama (stariji od 50 godina), povezan je sa težinom bola koji se oseća za vreme (ponekad čak i pre) osipa u akutnom HZ, i mnogo se češće sreće među ženama. Jedan od ciljeva specijaliste za bol je da pokuša da prevenira razvoj teškog akutnog bola u hronično bolno stanje.

Lečili smo četiri pacijenta (dve žene i dva muškarca) sa potvrđenom HZ infekcijom i teškim akutnim bolom (Vizuelna Analogna Skala ≥ 8), koji je rezistentan na maksimalnu medikamentoznu terapiju, putem blokada gangliona i međurebarnih nerava zahvaćene regije grudnog koša (u sva četiri slučaja). U sva četiri slučaja, koristili smo lokalni anestetik – 0, 25% rastvor bupivakaina, bez drugih adjuvanasa. Aplikovali smo 5-10 ml rastvora u svakom zahvaćenom segmentu paraspinalno i 3-5 ml u svakoj bokadi interkostalnog nerva, a takođe i jedan segment iznad i jedan ispod zahvaćenog dermatoma. Nakon svake procedure, pacijent je praćen tokom dva časa. Mi smo tretirali bolom zahvaćeno područje jednom dnevno, svakog dana, tokom pet dana.

U sva četiri slučaja, imali smo veoma slične rezultate, i korak po korak, bol je nakon pet tretmana potpuno iščezao, bez ikakvih komplikacija (izvodili smo svaki tretman pod kontrolom ultrazvuka). I više od toga, nakon pet dana, mi smo mogli da prestanemo da propisujemo bilo koje lekove protiv bolova. Tokom naredna tri meseca, bol se nije vratio. Ova pilot studija pokazuje veoma dobre rezultate u lečenju akutnog teškog bola i prevenciji razvoja postherpetične neuralgije. Lečenje nije skupo, bezbedno je za izvođenje, a poželjno je poznavanje i korišćenje ultrazvuka (kao navigacije za blokadu perifernih nerava i simpatičkih paraspinalnih gangliona). Neophodna su buduća istraživanja i veće serije kliničkih studija u ovom pravcu.

REFERENCES

1. Nalamachu S, Wieman M, Bednarek L, Chitra S. Influence of anatomic location of lidocaine patch 5% on effectiveness and tolerability for postherpetic neuralgia. Patient Preference and Adherence 2013; 7: 551–7.

2. Weaver BA. The burden of herpes zoster and postherpetic neuralgia in the United States. J Am Osteopath Assoc. 2007; 107 (3 Suppl. 1): S2–S7.

3. Kim SY, Solomon DH. Tumor necrosis factor blockade and the risk of viral infection. Nat Rev Rheumatol 2010; 6 (3): 165–74.

4. Birlea M, Arendt G, Orhan E, Schmid DS, Bellini WJ, Schmidt C. et al. Subclinical reactivation of varicella zoster virus in all stages of HIV infection. J Neurol Sci 2011; 304 (1–2): 22–4.

5. Lin KC, Wang CC, Wang KY, Liao YC, Kuo JR. Reactivation of herpes zoster along the trigeminal nerve with intractable pain after facial trauma: a case report and literature review. BMJ Case Rep. 2009; 2009. pii: bcr07.2008.0525. doi: 10.1136/bcr.07.2008.0525. Epub 2009 Apr 28.

6. Irwin M, Costlow C, Williams H, Artin KH, Chan CY, Stinson DL. et al. Cellular immunity to varicella-zoster virus in patients with major depression. J Infect Dis. 1998; 178 (Suppl. 1): S104–S108.

7. Navez ML, Monella Ch, Bosl I, Sommer D, Delorme C. 5% Lidocaine Medicated Plaster for the Treatment of Postherpetic Neuralgia: A Review of the Clinical Safety and Tolerability. Pain Ther (2015) 4: 1–15.

8. Dworkin RH, O'Connor AB, Audette J, Baron R, Gourlay GK, Haanpää ML. et al. Recommendations for the pharmacological management of neuropathic pain: an overview and literature update. Mayo Clin Proc. 2010; 85 (Suppl.): S3–S14.

9. Attal N, Cruccu G, Baron R, Haanpää M, Hansson P, Jensen TS, Nurmikko T. EFNS guidelines on the pharmacological treatment of neuropathic pain: 2010 revision. Eur J Neurol 2010; 17: 1113- e88.

10. Finnerup NB, Attal N, Haroutounian S, McNicol E, Baron R, Dworkin RH. et al. Pharmacotherapy for neuropathic pain in adults: a systematic review and meta-analysis. Lancet Neurol. 2015. (Epub ahead of print).

11. Boesl I. and Koenig S. More than 20 million patients used 5% lidocaine medicated plaster: an update on its safety profile. PainWeek. 2014. http://conference.painweek.org/media/mediafile _ attachments/04/724-painweek2014acceptedabstracts. pdf. Accessed Mar 24, 2015.

12. Rowbotham MC, Davies PS, Verkempinck C, Galer BS. Lidocaine patch: double-blind controlled study of a new treatment method for post-herpetic neuralgia. Pain. 1996; 65: 39–44.

13. Galer BS, Rowbotham MC, Perander J, Friedman E. Topical lidocaine patch relieves postherpetic neuralgia more effectively than a vehicle topical patch: results of an enriched enrollment study. Pain. 1999; 80: 533–8.

14. Baron R, Mayoral V, Leijon G, Binder A, Steigerwald I, Serpell M. 5% lidocaine medicated plaster versus pregabalin in post-herpetic neuralgia and diabetic polyneuropathy: an open-label, non-inferiority two-stage RCT study. Curr Med Res Opin. 2009; 25: 1663–76.

15. Binder A, Bruxelle J, Rogers P, Hans G, Bösl I, Baron R. Topical 5% lidocaine (lignocaine) medicated plaster treatment for post-herpetic neuralgia: results of a double- blind, placebo-controlled, multinational efficacy and safety trial. Clin Drug Investig. 2009; 29: 393–408.

16. Rehm S, Binder A, Baron R. Post-herpetic neuralgia: 5% lidocaine medicated plaster, pregabalin, or a combination of both? A randomized, open, clinical effectiveness study. Curr Med Res Opin. 2010; 26: 1607–19.

17. Hans G, Sabatowski R, Binder A, Boesl I, Rogers P, Baron R. Efficacy and tolerability of a 5% lidocaine medicated plaster for the topical treatment of post-herpetic neuralgia: results of a long-term study. Curr Med Res Opin. 2009; 25: 1295–305.

18. Sabatowski R, Hans G, Tacken I, et al. Safety and efficacy outcomes of long-term treatment up to 4 years with 5% lidocaine medicated plaster in patients with post-herpetic neuralgia. Curr Med Res Opin 2012; 28: 1337–46.

19. Galer BS. and Gammaitoni AR. More than 7 years of consistent neuropathic pain relief in geriatric patients. Arch Intern Med. 2003; 163: 628.

20. Mick G. and Correa-Illanes G. Topical pain management with the 5% lidocaine medicated plaster - a review. Curr Med Res Opin. 2012; 28: 937–51.

21. Jankovic D. Regionalblokaden und Infiltrationstherapie, 3.vollstandig uberarbeitete und srgantze Auflage. Berlin: ABW Wissenscaftsverlag GmbH; 2004.

22. Bricout H, Perinetti E, Marchettini P, Ragni P, Zotti CM., Gabutti G, Volpi A, Franco E. Burden of herpes zoster -associated chronic pain in Italian patients aged 50 years and over(2009-2010): GP-based prospective, cohort study. BMC Infectious Diseases 2014; 14: 637-48.

23. Nalamachu S. and Morley-Forster P. Diagnosing and Managing Postherpetic Neuralgia. Drugs Aging 2012; 29: 863–9.

24. Hardy D. Relief of pain in acute herpes zoster by nerve blocks and possible prevention of post-herpetic neuralgia [Le soulagement de la douleur de l'herpès zoster aigu et la prévention possible de la névralgie post-herpétique par des blocages nerveux]. Can J Anesth 2005; 52(2): 186–90.

25. Liedgen H., Obradovic M., Nuijten M. Health economic evidence of 5% lidocaine medicated plaster in post-herpetic neuralgia. ClinicoEconomics and Outcomes Research 2013; 5: 597–609.

26. Boivin G., Jovey R., Elliott C.T., Patrick D.M. Management and prevention of herpes zoster: A Canadian perspective. Can J Infect Dis Med Microbiol 2010; 21(1): 45-52.

27. Johnson RW, McElhaney J. Postherpetic neuralgia in the elderly. Int J Clin Pract. 2009; 63(9): 1386–91.

28. Tontodonati M, Ursini T, Polilli E, Vadini F, Di Masi F, Volpone D, Parruti G. Post-herpetic neuralgia. International Journal of General Medicine 2012; 5: 861–71.

29. Likar R, Demschar S, Kager I, Neuwersch S, Pipam W, Sittl R. Treatment of localized neuropathic pain of different etiologies with the 5% lidocaine medicated plaster – a case series. International Journal of General Medicine 2015; 8: 9–14.

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