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5% lidocaine medicated plasters vs. sympathetic nerve blocks as a part of multimodal treatment strategy for the management of postherpetic neuralgia: A retrospective, consecutive, case-series study

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ABSTRACT

Introduction: 5% lidocaine medicated plasters (5% LMP) have been appointed as a first-line treatment for post-herpetic neuralgia (PHN), while formerly used sympathetic nerve blocks (SNBs) were recently denied their clinical efficacy. The aim of this study was to compare the results of PHN management with the use of SNBs and 5% LMP as a first-line treatment.

Material and methods: This study was designed as a retrospective, consecutive, case-series study. Data of 60 consecutive PHN patients with allodynia treated with the use of SNBs and 60 subsequent patients managed with 5% LMP were analyzed. Pain severity after 8 weeks was assessed to recognize the results of the implemented therapy, with numeric rating scale (NRS) score <3 or =3 considered a success. Additionally, the number of pain-free patients (NRS = 0) after 8 weeks were identified in both groups and compared.

Results: The rate of failures in SNBs and 5% LMP group was similar (18.9% vs. 27.1% of poor treatment results, respectively), with the average change in NRS of 5.88 ± 2.41 in nerve blocks and 5.01 ± 1.67 in lidocaine group ($p = 0.02$). Significant difference was also noted in the rates of pain-free patients: 20 patients (34.4%) treated with SNBs and 8 (13.5%) using 5% LMP were pain-free after 8 weeks of treatment.

Conclusion: It may be concluded that SNBs may still be considered useful in PHN management, as it appears that in some cases this mode of treatment may offer some advantages over 5% LMP.

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1. Introduction

The incidence of herpes zoster (HZ) and postherpetic neuralgia (PHN) is large enough for us to be recognized as a common clinical problem. Herpes zoster is thought to be a result of varicella zoster virus (VZV) reactivation, which resides in dorsal root ganglia (DRG) until its activation, following which it spreads peripherally causing distal neuropathy. Clinical presentation is usually unilateral and accompanied by pain in the affected area, which normally lasts for several days. In some cases pain extends beyond the acute phase and healing of skin lesions, which along with its neuropathic character is consistent with the diagnosis of postherpetic neuralgia (PHN). The incidence of PHN is 9–30% of HZ cases, depending on the source cited, while 10% is probably the most likely average [1]. The management of both HZ and PHN is challenging, there are numerous approaches suggested which aim at reducing the time of acute phase of the disease and pain severity, as well as the risk of PHN. The reason for various approaches proposed in the past is obviously its complex pathophysiology, which is still far from being clearly defined, although it is now well established that both peripheral and central mechanisms are involved [2]. Widely recognized guidelines on the neuropathic pain management are being published and updated, setting its pharmacological treatment standards [3,4]. Various techniques of interventional pain management have been employed in the past to battle the pain associated with HZ and PHN, effectiveness of which have been scrutinized and summarized in the 2013 guidelines for interventional pain management of neuropathic pain [5]. According to these guidelines the sympathetic nerve blocks (SNBs) are not recommended in the treatment of PHN. We had been using nerve blocks as the addition to pharmacological treatment in the management of PHN for number of years, which in 2010 was replaced by 5% lidocaine medicated plasters (5% LMP). Since our overall experience with SNBs had been very plausible, we decided to analyze the available clinical data in order to compare these two methods of PHN therapy.

2. Material and methods

The study was approved by institutional ethics committee. We identified and reviewed medical records of 120 consecutive PHN patients who were treated from 2008 until Feb 2014 in the Pain Clinic, Department of Anesthesiology and Intensive Care, Medical Center for Postgraduate Education in Warsaw, and whose clinical picture contained allodynia. PHN was defined as the pain of typical character (constant throbbing pain or intermittent sharp pain, and allodynia), persisting beyond the healing of herpetic skin lesions (more than 4 weeks of the rash onset). Regardless of earlier treatment, the similar regime of management was proposed to all of them, which consisted of either sympathetic nerve block (first 60 patients with allodynia) or 5% lidocaine medicated plaster (subsequent 60 patients), which if not adequately effective was accompanied first by gabapentinoid, then antidepressant and potent opioid. Our aim was to compare the groups of similar characteristics, thus the number of analyzed cases of PHN treated with SNBs was determined by the number of patients in whom 5% LMP plasters were used, which until Feb 2014 was 60. For the purpose of unbiased analysis no further cases were added, even if decision was made to exclude the patient.

2.1. *Techniques*

The method of nerve block placement was similar for the given pain location. With the exception of lumbar epidural and sciatic nerve blocks, the local anesthetic used was bupivacaine 2.5 mg/ml (0.25%) with epinephrine 2.5 μg/ml. For PHN of the first trigeminal (ophthalmic) nerve its isolated blockade with 5 ml of 0.25% bupivacaine/epinephrine was implemented. Affected second and/or third trigeminal nerve branch, as well as neck and upper extremity PHN were the indications for stellate ganglion block, for which the modified blind paratracheal approach technique as described by Carron was employed, with 5 ml of 0.25% bupivacaine/epinephrine [6]. Chest was the most common location of the PHN. Blocks of the corresponding intercostal nerves were placed in these cases with the same concentration of local anesthetic. Three to five neighboring intercostal nerves were typically blocked with 3 ml of local anesthetic solution each, along the scapular line. Sciatic nerve block was implemented in cases where lower extremity was affected. The series of SNBs was started at the first Pain Clinic visit, procedures were repeated twice a week (Mon and Thu). Pharmacological treatment with gabapentin and tricyclic antidepressant was added at the third visit if pain control was not effective, which was defined as Numeric Rating Scale score >3 (NRS > 3). If no success was achieved, after two weeks a potent opioid was introduced. SNBs were continued until either a total of 10 blocks were done or success achieved (NRS ≤ 3).

Similarly 5% lidocaine medicated plasters were prescribed at the first visit, to be applied for 12 h a day to the affected area, up to 3 plasters at a time, with 12 h plaster-free time in 24 h. Pain control was reassessed after a week and the same as in nerve blocks group pharmacological treatment was added if found not to be satisfactory (NRS > 3). Unlike SNBs, the lidocaine plasters were continued for the whole period of 8 weeks.

Pain severity after 8 weeks of Pain Clinic care was used to assess the management success or failure. We arbitrarily assumed NRS < 3 or =3 as a cut-off point for therapy success, while spectacular results (NRS 0) were recognized and recorded separately. Statistical analysis was done with Statistica 10 (StatSoft) software: Fisher's exact test was used to compare the rates of treatment results in the groups assessed and student *t*-test to find the difference in mean NRS change between them.

3. Results

A total of 120 cases were reviewed. Of 60 patients in each group, 2 were excluded from SNBs group due to the lack of patient's consent to nerve blocking in one case and a history of previously ineffective series of SNBs in the other. Data regarding one case treated with 5% lidocaine plasters were excluded, as in this case the early onset of significant allergic skin reaction resulted in discontinuation of topical treatment.