Case report:

Challenges in Managing A Patient With Central Post-Stroke Pain

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Abstract :

Objective: This is a case illustration of the challenges in managing a patient with central post stroke pain secondary to right thalamic bleed. We describe in detail the events of this case management and the challenges that we had encountered. ***Method****:* We report a case of a 68-year-old lady who had right thalamic bleed secondary to hypertensive crisis in 2015 and was further complicated with central post stroke pain over the hemiparetic side. In our report, we describe in detail the challenges in managing the patient to improve her function to achieve a better quality of life. ***Conclusion****:* This article illustrates the importance of a multidisciplinary approach and knowledge of various methods in managing a patient with central post stroke pain.

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Case presentation:

A 68-years-old lady with uncontrolled hypertension sustained a right thalamic bleed in 2015. She was premorbidly well prior to the cerebrovascular accident. She developed an acute onset of left sided hemiparesis, hemisensory loss with neuropathic pain over her left upper limb. The power of the affected limbs were 4/5 according to Medical Research Council grading scale with evidence of mild spasticity over the left bicep, and gastrocnemius/soleus muscle complex with Modified Ashworth Scale of 1. She was still able to ambulate indoor independently using quadripod and perform some simple domestic activities of daily living. The major problem that affected her daily life was the neuropathic pain over the left upper limb.

She described the pain as burning and pricking in nature, which was severe enough to disturb her activities of daily living with Numerical Rating Scale (NRS) of 7 to 8 over 10. The pain was continuous throughout the day and frequently at night, which caused serious sleep disturbance. The pain was felt over the entire aspect of the whole left upper limb and occasionally spread to her left face and neck. She denied any hyperalgesia or allodynia.

She was started on Amitryptiline 25mg daily two weeks after the pain onset. However, there was no improvement in the NRS pain score after starting the medication for almost a month. Increasing the dose up till 50mg daily did not bring forth any improvement

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too. We were a bit cautious not to increase the dosage further as this patient has pre-existing cardiovascular disease. We then stopped the Amytripiline and changed the medication to Gabapentin, an anticonvulsant. She only showed significant pain relief with Gabapentin 600mg tds, whereby her NRS score improved to 4 over 10. However, the patient experienced intolerable side effects at this dose, where she felt lightheadedness and sleepy during daytime and was unable to perform her normal activities of daily living. She became frustrated and started to display depressive symptoms such as persistent low mood and lost of interest in daily activities. Nonetheless we did not start her on any medications, as her PHQ-9 score was only 5, which indicated mild depression. We then reduced the Gabapentin dosage to 300mg tds and incorporated counseling and psychological management to address the pain. These involved cognitive behavioral approach such as breathing and relaxation therapy and distraction techniques. However, these techniques require high commitment from the patient to practice them daily. We had educated Madam H on the significant role of psychological approach besides the pharmacological management in treating the pain and emphasized on the importance of applying the technique correctly and regularly. The managing team had failed to convince her to practice those techniques regularly even though multiple therapy sessions were arranged. Besides, she also underwent acupuncture as an alternative treatment to manage her pain. She stopped after several sessions and claimed that it did not help to relieve her pain. Her NRS score was maintained at 6 over 10, which, according to the patient, was not the desirable score. Since Gabapentin seemed to work, we continued the medication with a lower dose of 300mg tds and encouraged her to comply on the breathing, relaxation and distraction techniques.

After 6 months of initiating treatment for the neuropathic pain, the NRS pain score was still 6 to 7 over 10. The patient felt dissatisfied and started to deteriorate in her daily function. She wished for the neuropathic pain to be completely treated. Due to the therapy resistance, we offered her electrical neurostimulation therapy for further reduction of pain but she refused. She had decided to continue with the Gabapentin 300mg tds only even though it controls the pain suboptimally.

Ethical Clearance:

This case report was submitted for publication after getting Ethical approval from the Ethics Committee of the School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Discussion:

Central post stroke pain belongs to a group of chronic pain disorders that are termed central neuropathic pain because the pain is due to a lesion or dysfunction of the central nervous syste[1]. Neuropathic or central pain has been estimated to occur in up to 8% of patients after a stroke during 1 year follow up. About 18% of stroke patients with somatosensory disturbances developed central post stroke pain[2]. In clinical practice, the treatment of patients with central post stroke pain is often based on trial and error until pain relief is found. Our case presented here showed some challenges in optimizing the pain. There is a general consensus that amitriptyline is the drug of first choice, but not all patients report a response[3]. The tricyclic antidepressant amitriptyline given at 75mg daily was found to be effective in improving the pain scores in 10 out of 15 patients with central post stroke pain versus 1 of 15 in a placebo group of a double-blinded placebo-controlled study at 2 weeks and 4 weeks from the start of treatment[4]. Amitriptyline is usually started at 10 or 25mg/day and titrated up to 75mg/day. Our patient did not respond to Amitryptiline at 50mg daily however we did not increase the dosage further as our patient had a preexisting cardiovascular disease. Thus, we had to try on another type of drug, which is Gabapentin, the anticonvulsant group. Although the efficacy of Gabapentin on peripheral and central neuropathic pain is well documented. It is associated with side-effects such as dizziness, decreased intellectual performance, somnolence, and nausea[5]. These side effects have caused our patient to be unable to perform her daily activities and the dose had to be reduced to a sub-optimal dose.

Besides medical therapy, the psychological approaches also plays important role. Different coping strategies have been recommended and used for post-stroke pain suppression. Cognitive behavioural therapy including breathing, relaxation and distraction techniques may help to modify negative thoughts related to pain. This can help patients to increase their activity level and functioning, which in turn can help improve mood, sleep and quality of life. In the case we presented above, the patient failed to apply the techniques taught to her in her daily activities despite reassurance on the effectiveness of the psychological approach.

Acupuncture is a complementary and alternative medical modality. The World Health Organization (WHO) in 2002 released a report entitled

"Acupuncture: Review and Analysis of Reports on Controlled Clinical Trials". This report states that acupuncture can be regarded as the method of choice for treating many chronically painful conditions. For post stroke complications, there were only evidences on effectiveness of acupuncture for shoulder pain after stroke[6]. For central post stoke pain, there are still low evidences that acupuncture shows significant effect[7]. In the case presented here, acupuncture did not help in alleviating the pain.

Other non-pharmacological treatment, including repetitive transcranial magnetic stimulation (rTMS), deep brain stimulation (DBS) and motor cortex stimulation (MCS) has been reported in case series and brief reports, but there are no controlled trials in this field. Due to low-quality evidence, recommendations for MCS and DBS are "inconclusive" in the treatment of central post stroke pain. Therefore, it is recommended that electrical neurostimulation should be considered in drug-resistant central post stroke pain patients only[8]. We suggested a trial of electrical neurostimulation to our patient since she did not respond optimally to pharmacological treatment, psychological therapy and alternative treatment.

In conclusion, managing central post stroke pain was indeed very challenging and there is a great need to identify better treatment regimes. However, holistic approach, including medical and psychological together with patient's participation and commitment towards treatment offered are the only current best practice in managing central post stroke pain.

Conflict of interest: None declared

Authors' Contributions:

Data gathering and idea owner of this study: Salim M SF, Hanafi MH

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Editing and approval of final draft: Salim M SF, Hanafi MH, Tan YC

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