Case Report

Advantages of an etiology-based method for treating cancer pain: a case report and literature review

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Abstract: The WHO analgesic guidelines for treatment of cancer pain have been proven safe and effective for most patients. However, there is still inadequate analgesia following that guideline based on pain degree. Case report: An 82-year-old man with history of right ceruminous gland carcinoma was treated by tumor resection following numerous courses of chemotherapy. He developed progressive pain ranging from 4 to 8 or 9 on the 0-10 numeric rating scale (NRS) involving the right side of face and neck area. Based on the WHO analgesic ladder, the primary prescription for the man contained tramadol (100 mg/d) and celebrex (400 mg/d). However, pain relief was unsatisfied with this prescription even when dose of tramadol increased to 200 mg/d. Then, tramadol was replaced with morphine sulfate tablets at 15 mg at every 8 hours, but the pain was only modest relieved. After reevaluation by pain physician-based on etiology and mechanism of pain using ID pain questionnaire, the patient was identified to experiencing neuropathic pain. Finally, the pain was successfully relieved by gabapentin as an adjuvant to tramadol.

Conclusions: The successful pain relief of the patient in this case indicates that treatment of pain that based on mechanism might be worth promoting. According to the etiology of pain, specific drugs or measures should be selected for the individual patient. This approach have certain advantages, such as timely pain relief, reduction of medical cost, and effective improvement of life quality of cancer patients.

Keywords: Cancer pain, neuropathic cancer pain, WHO analgesic ladder, adjuvants

Introduction

The intensity of cancer pain is usually moderate to severe for patients, which seriously affects their quality of life [1]. Most patients can achieve good pain relief by following the “three-step-analgesic ladder” proposed by World Health Organization (WHO), which is applied to select the appropriate opioids according to the patient’s pain intensity. Treatment using nonsteroidal anti-inflammatory drugs (NSAIDs) in step I (0-4 on a 0-10 numeric rating scale, NRS, where 0 = no pain and 10 = severe pain); weak opioids for mild to moderate pain (NRS 5-6) in step II, and strong opioids for moderate to severe pain (NRS 7-10) in step III was accompanied by adjuvants when appropriate. However, pain management is still inadequate for more than 40% of patients [2]. Among these under treatment patients, the pain etiology and mechanism has not been clearly elucidated. Research has shown that the neuropathic type of cancer pain was the most common reason for inadequate pain management [3]. An important feature of neuropathic pain is that the painful impulses are generated by neural dysfunction, so it is not sensitive to conventional pain-relieving agents, even opioids [4, 5]. Herein, we report a patient with severe facial pain after tumor removal that was successfully relieved by etiology-based method instead of the routine guideline.

Case history

The patient was an 82-year-old man with a history of right ceruminous gland carcinoma that had been treated by tumor resection following numerous courses of chemotherapy in the past two years. Then he developed progressive pain involving the right side of the face and the neck area, ranging from 4 to 8 or 9 on the 0-10 numeric rating scale (NRS). He was unable to control the intense pain, and he presented to
Etiological treatment is crucial for patients with cancer pain

the oncology department with moderate to severe pain. The pain was continuous and described as deep aching, burning, and shooting with pin and needles. The inability to alleviate this pain resulted in poor sleep quality, emaciation, and irritability.

Based on the WHO analgesic ladder, the man should be received weak opioids (e.g. tramadol). Therefore, the prescription consisted of Tramal (100 mg/d) and Celebrex (400 mg/d) initially. However, the patient's pain relief was unsatisfied despite increasing the dose of Tramal to 300 mg/d, with an NRS score of 4-6 at rest and 8-10 when stretched his face and neck area. Tramal was discontinued and replaced with oral morphine sulfate tablets (15 mg, three times/d). Even when the dosage was increased to 30 mg, three times per day, the patient demonstrated only modest pain relief; further, he complained of constipation, somnolence, and dizziness.

The patient was transferred to our department for advanced pain managements because of the failure of pain control. We conducted a thorough physical examination and revaluated the underlying etiology and mechanism of pain in this case by using ID pain questionnaire [6]. The results indicated that the patient was experiencing neuropathic pain. Because evidence shown that gabapentin is effective in the management of neuropathic cancer pain, we consider gabapentin to be the preferred add-on medicine in the new treatment combination which consisted of gabapentin (0.1 g/d), tramal (200 mg/d) and etoricoxib (60 mg/d) [7].

After three days, the patient complained that the pain relief was only modest; thereafter, the gabapentin dose was increased to 0.2 g/d and etoricoxib was increased to 120 mg/d.

One week later, the patient reported a good analgesia effect, with the NRS level from 1 to 3 at rest; furthermore, the pain frequency had decreased to one-quarter of the initial frequency. In the continuous oral treatment for another three weeks, the pain symptoms were well controlled.

Discussion

The three-ladder analgesic principle proposed by the WHO is economical, safe, and effective methodological guideline for the oral treatment of cancer pain. Over years of clinical practice, this guideline has been proven to be an effective method that successfully relieved cancer pain in most patients, thereby significantly increasing the quality of life of cancer patients [8, 9]. However, recent studies have reported that the use of this method could not achieve satisfactory analgesic efficacy in at least 10% to 30% patients with cancer pain. In particular, the analgesic efficacy in patients with neuropathic cancer pain was poor [2, 10].

The conventional method, choose the appropriate opioids according to the pain intensity, has less effectiveness analgesic performance in patients with chronic neuropathic pain [2-4]. Even oral administration of strong opioids such as morphine cannot achieve satisfactory analgesic efficacy by routine dosage while higher increasing the risk of relatively adverse effects [11]. This guideline indicates that adjuvants can be administered, based on the patient's individual conditions, simultaneously with opioids as the predominant treatment. When the patient's pain has not been controlled, however, deciding whether to increase the dosage of the original opioids or to add one or several types of adjuvants is still a challenge faced by clinicians. The patient presented in this paper who experienced chronic pain after undergoing tumor resection was a typical example showing that oral administration of morphine at a dose as high as 90 mg/d may not effectively control chronic cancer pain. Although the irregular drug administration for this patient during the early stage is a valid explanation for this ineffectiveness, it was more likely due to the insensitivity of neuropathic pain itself to opioids. Unlike pain specialists, most oncology physicians lack accurate and comprehensive knowledge of pain, and rigidly apply the WHO three-ladder treatment to the patient, i.e., use opioids as the basic medication, which might lead to the ineffective control of neuropathic segment of cancer pain.

The successful treatment in this case indicates that mechanism-based treatment principles may be worth promoting. Pain can be generally categorized as nociceptive pain, neuropathic pain, and a mixture of both types. When a patient comes to visit a doctor because of pain, the pain should first be assessed and categorized based on the patient’s medical history and assessment scales. Next, according to the
Etiological treatment is crucial for patients with cancer pain. An in-depth analysis of the mechanisms of pain, specific and targeted drugs or measures should be selected for the individual patient. This approach might have certain advantages, such as relieving the patient’s pain in a timely manner, reducing the medical cost, and effectively improving the quality of life of cancer patients. However, the success of one case is insufficient for the development of a new treatment principle. A greater number of large-scale, randomized controlled studies are required to verify the effectiveness and feasibility of this principle and to promote the development of a new mechanism-based multi-mode treatment method for cancer pain.

Disclosure of conflict of interest

None.

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References