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Tapentadol prolonged release for pain control in a frail obese patient: a case report

M.C. IAPICHINO

Ospedale Privato Accreditato Villa Pineta srl, Gaiato, Modena, Italy

Abstract. – We present the case of a 59-year-old woman with third-grade obesity and severe comorbidities including osteoporosis, dyslipidemia, diabetes mellitus, hypertension, night eating following bariatric biliary-intestinal bypass surgery, severe fibromyalgia, poly-arthrosis, lumbar disc herniation in L5S1, sleep disorders and sleep apnea syndrome, and emotional disorders with anxiety and depression, who suffered from chronic pain unresponsive to a combination of multiple analgesics. After a period of metabolic and nutritional rehabilitation, analgesic treatment with tapentadol prolonged release (PR) was started and gradually increased to a daily dose of 300 mg with optimal pain control and a marked improvement in the quality of life and autonomy. Therapy suspension was followed by rebound pain with a worsening in functional capacity, and thus, the patient requested a new rehabilitation treatment, with new benefits.

Analgesia is of paramount importance in fragile patients who are undergoing a rehabilitation period, in order to improve compliance with the rehabilitation protocols and increase the success of behavioral therapy. Tapentadol PR can be an effective analgesic therapy for pain control in several settings. Its peculiar tolerability profile improves the acceptability of tapentadol, even in patients with multiple previous analgesic treatments.

Key Words:
Tapentadol, Fragile patients, Chronic pain, Rehabilitation.

Introduction

Chronic pain is a frequent manifestation of several diseases[1-4], among which obesity may cause important pain. An innovative treatment option for chronic pain is tapentadol[5-8] (Grunenthal, Aachen, Germany), a molecule with a peculiar mechanism of action, and a favorable tolerability profile. A number of different experiences[9-22] have already shown the efficacy of tapentadol prolonged release (PR) in various painful conditions, both in surgical and non-surgical settings. This efficacy is independent from age, gender, and body mass index (BMI)[23], and thus, tapentadol PR is a very appropriate choice for therapy selection in obese patients. Notably, tapentadol PR may also be a valid option in patients during rehabilitation periods, in order to lessen the pain associated with the prescribed exercises. Tapentadol PR treatment resulted in a higher reduction of pain intensity compared with paracetamol during rehabilitation after knee replacement surgery[22]. The comparison was made with common opioids and other analgesics, with similar results of improved tolerability and equal or better analgesia.

It is important to underline that analgesia may be difficult to achieve in patients with numerous comorbidities, and that drug-drug interactions may affect the bioavailability of the active molecules and create unwanted serious side effects. Thus, a molecule with a low potential for drug-drug interactions, such as tapentadol, can be the optimal choice. This is the case of the patient we present in this report: a fragile patient with several comorbidities, not tolerating a mixture of analgesic drugs due to both side effects and ineffective pain control, who improved substantially with tapentadol PR reaching complete autonomy in the basic activities of daily living (BADL).

Case Presentation

A 59-year-old woman suffering from third-grade obesity (>40 kg/m^2) was admitted to the Metabolic and Nutritional Rehabilitation Clinic in July 2017, where a comprehensive healthcare check was carried out, taking into account her obesity and the existing comorbidities (dyslipidemia, diabetes mellitus, hypertension, hyperuricemia, allergic asthma, hypothyroidism due to past Hashimoto's thyroiditis under treatment,

Corresponding Author: Maria Cinzia Iapichino, MD; e-mail: iapichino.mariacinzia@villapineta.it

night eating following bariatric biliary-intestinal bypass surgery, severe fibromyalgia, poly-arthrosis, lumbar disc herniation in L5S1, osteoporosis with a lowering of the upper somatic limiting of L5 under vitamin D therapy, sleep disorders and sleep apnea syndrome, and emotional disorders with anxiety and depression). A personalized set of physical exercises was planned for the patient, according to her own abilities, with particular attention to ensure the absence of pain during the training.

At admission to the clinic, pain intensity on the Numeric Rating Scale (NRS) was 5 at rest, and 7 in motion, with a Barthel index score of 95/100, and a score of 6/6 in the BADL. The patient walked only 260 m with aid on the 6-minute-walking test (6 mWT). Analgesic treatment with tapentadol PR 50 mg was started, with up-titration to 50 mg twice daily after 3 days, and subsequent up-titration as needed, to a maximum dose of 150 mg twice daily. The use of Rollator as mechanical aid to long distance walking was also suggested, with low-intensity physical activity performed in the gym under supervision. At discharge, NRS for pain at rest was 1, and NRS for pain in movement was 2; the Barthel index score was 100/100, the score of the BADL was 6/6, and with complete autonomy in primary ADL. Moreover, the patient could walk 350 m at the 6 mWT without aid, and she reported good pain control with the ongoing analgesic treatment (tapentadol PR 150 mg twice daily).

In December 2017, due to an episode of persistent vertigo, the family doctor recommended immediate discontinuation of tapentadol PR, but the patient experienced rebound pain with severe diffuse acute pain and severe functional impotence with pseudo-paralysis of several joints, for pain relief and total dependence on primary ADLs. The patient was admitted to the emergency room, where a cocktail of seven different analgesics was prescribed: steroids for 2 weeks, myorelaxants, two types of NSAIDs (both intra-muscular injections and oral pills), painkillers when needed and neurotrophic drugs. Despite the high number of analgesic drugs, which were poorly tolerated due to several side effects, the patient experienced very little symptom improvement, with persisting diffuse and disabling pain. Moreover, she was still partially dependent on primary ADL, with aid required for walking, climbing stairs, dressing, and personal hygiene.

She was dissatisfied for the treatment received and decided to return to the rehabilitation clinic; while attending an appointment at the clinic, a rheumatologist hypothesized the central sensitization for neuropathic pain and recommended to resume tapentadol PR 50 mg twice daily. With this treatment, the patient reported initial symptom improvement although autonomy in ADL was not achieved. Thus, at the rehabilitation clinic tapentadol was slowly up-titrated to 100 mg twice daily, and additional treatments (magnesium supplementation for hypomagnesemia and motor re-education with lumbar decompression, lengthening of the posterior kinetic chains, and strengthening of the near-distal muscles of the legs). Despite incomplete pain control, tapentadol PR was not up-titrated any further due to the of pain resistance of the family doctor, who preferred the intra-muscular combination of diclofenac and thiocolchicoside plus additional ibuprofen or the association of paracetamol and codeine for acute pain. In July 2018, the patient was re-admitted to the clinic: the NRS for pain at rest was 3, and during movements, NRS was 7; the Barthel index score was 90/100, the score for the BADL was 5/6, and the patient could walk 310 m with aid at the 6 mWT. During her stay in the clinic, tapentadol was uptitrated to 150 mg twice daily, and all other analgesic medications were discontinued due to optimal pain control. In fact, the patient was discharged with a NRS score both at rest and during movement of 1, a Barthel index score of 100/100, autonomy in the BADL 6/6 and in walking without aid for 360 m at the 6 mWT, and complete autonomy in primary ADL.

Discussion

The incidence and frequency of chronic pain increase with age and with the number of comorbidities[1-4], with particular relevance to degenerative diseases of the joints, arthritis, osteoporosis, and vasculopathies[2,3]. All these diseases, in turn, are more frequent in the obese population. Frequently, a personalized approach to pain control is based on opioids as the first-choice analgesic for chronic severe pain, despite the low efficacy of opioids on neuropathic pain, and important side effects.

Tapentadol is an effective analgesic alternative: with its dual mechanism of action, combining synergistically <40% load of μ-opioid receptor agonism (MOR) with noradrenaline reuptake inhibition (NRI)[5], tapentadol is suitable also for patients with cardiovascular diseases, mild-to-mod-

erate renal failure, and mild hepatic disease[5-8]. Noteworthy, given the reduced μ-load of tapentadol compared to strong opioids[5], tolerability is increased, and the analgesic efficacy is equal. Furthermore, tapentadol PR is easily manageable, and with a lower rate of adverse effects, it allows for improved overall quality of life.

Several studies showed the efficacy and safety of tapentadol PR in the treatment of pain from various etiologies, both oncologic and non-oncologic[9-22]. For instance, tapentadol PR is effective in the treatment of osteoarthritis, both in the non-surgical and in the surgical setting, and during rehabilitation. Tapentadol PR was compared with oxycodone controlled release for osteoarthritis-related knee pain, and it significantly reduced pain intensity[19]. Another group tested the effectiveness and tolerability of tapentadol PR following the WHO 3rd step of the analgesic ladder with opioids, in patients with severe pain and tolerance to opioids[20] with results favoring tapentadol PR both in terms of better pain control/reduced pain intensity and in terms of fewer adverse effects. Furthermore, pain control during rehabilitation after surgery is of paramount importance, in order to improve patients' compliance with rehabilitation protocols, and thus the overall quality of life. Tapentadol PR was compared with paracetamol for pain control during rehabilitation after knee replacement surgery[22], with a higher reduction in pain intensity with tapentadol PR compared with paracetamol.

Conclusions

Chronic pain associated with degenerative diseases, such as osteoporosis, arthrosis, and osteoarthritis, causes a high degree of disability, and it is frequently of severe intensity. In order to improve the functional recovery after surgery and during rehabilitation, control of pain is of paramount importance. However, patients with many comorbidities are more fragile than other subjects, and pain control is even more crucial in this subpopulation. The selection of the best treatment option in these patients should be based on the mechanism of action of each drug, with a peculiar attention to the efficacy on the nociceptive and the neuropathic components of pain. Tapentadol PR showed comparable or even superior efficacy versus opioid[24], with better tolerability and fewer adverse effects, in studies in various settings, from osteoarthritis to low back pain, neck pain and musculoskeletal pain, in the non-surgical, and surgical setting, as well as during rehabilitation after surgery, independently from age, gender and more importantly independently from BMI[23-25]. This is due to the reduced load of μ-opioid receptor of tapentadol, compared with strong opioids.

Conflict of Interest

The Authors declare that they have no conflict of interests.

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