Case Report

A Multidisciplinary Approach to Addiction Developed in a Patient Receiving Chronic Pain Treatment with Fentanyl

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Summary

Fentanyl, an opioid analgesic, started to be used more widely in patients with chronic pain who do not respond to a standard pain treatment. Reports of cases involving abuse and addiction are increasing rapidly when it is used for a reason other than medical treatment. This article presents a case where fentanyl was started for chronic pain treatment but addiction developed after a short time and discusses how the use of opioid analgesics can be regulated in patients with chronic pain in the light of the literature. The aim was to attract attention to the importance of standardizing and controlling treatments with this group of medication in our country where family medicine is becoming widespread.

Key words: Fentanyl, opioid, addiction, pain

INTRODUCTION

Chronic pain is a condition that lasts more than three months or where the underlying cause lasts longer than the expected recovery time, negatively affecting the individual's well-being, functioning and quality of life⁴. Although the analgesic ladder of the World Health Organization (WHO) was developed for the pharmacologic treatment of cancer pain, it is also being used safely in chronic pains not associated with cancer⁶. Standard non-opioid and non-steroid anti-inflammatory drug treatments are used for non-cancer pains such as back and low back pain⁶. However, use of opioid-group medications may become necessary in some patients who do not respond to the treatment. As the efficacy of using opioid in chronic non-cancer pain (CNCP) has been increasingly evidenced in recent years, the use of opioid-group analgesics in patients with pain is becoming more and more common. It was reported that the rate of CNCP was 19% in Denmark and 12% of these patients used opioid⁶.
In general, the actions of opioids at cellular levels are inhibitory, although opioids do increase activity in some neuronal pathways by inhibiting the actions of some inhibitory interneurons. One of the most commonly preferred opioid analgesics is fentanyl. Fentanyl is a derivative of semi-synthetic phenylpiperidine and a strong mu-opioid receptor agonist. It is 75 to 100 times stronger than morphine. Its transdermal forms are used in chronic pain. Fentanyl does not cause any release of histamine and it leads to either very little or no change in myocardial contractility. It can be used in patients with kidney failure, but it must be controlled for its cumulative impacts. It has been demonstrated in the studies made with transdermal fentanyl that it was effective in moderate and severe chronic pains of nociceptive, neuropathic and mixed types and improved sleep and quality of life. Its 0.0.5 mg/ml vials and ampoules and 12, 25, 50, 75 and 100 µg transdermal, 200, 400, 800 µg oromucosal forms are available in Turkey.

Increasingly more cases of fentanyl abuse are being reported in the literature. It is persistently being underlined in recent guidelines that prescribed opioids exceeded agents such as heroin and marihuana in narcotic misuse or abuse; as prescription of opioids increased, deaths associated with drug abuse and high doses also increased and measures must be taken for this reason. The second most frequent reason for accidental deaths in America is unintentional administration of drugs in high doses and prescribed opioids are held responsible for 40% of such deaths. The rate of abuse can change depending on the sustained-release opioid type, but it was found more risky than hydrocodone and oxycodone morphine.

The Schearmann disease that was diagnosed in the case presented below is a disease that can be seen in 5-8% of adolescents, causing spinal pain, cosmetic deformation, thoracic disk herniation and premature degenerative changes. Symptoms such as fatigue, pain and local sensitivity begin in puberty. Most frequently, the middle and lower thoracic vertebrae are involved and it has no other laboratory diagnoses. The Schearmann disease is characterized by a low back and/or back pain and is an idiopathic condition associated with the aseptic necrosis of the primary or secondary ossification centers.

**CASE PRESENTATION**

A face-to-face interview was held with the patient, who was a 24-year old, married, tall, obese and brunet male with tattoos in his arms and legs. His outfit was inelaborate for his age and social status and he seemed to take less care of himself. The patient who was conscious and fully oriented could establish a good cooperation. His psychiatric examination revealed that he had reduced spontaneous attention; his memory, thinking process and flow, and judgment were normal; his mood was dysphoric; his affect was in line with his mood; he had reduced mimics; he spoke slowly but fluently; he had a reduced impulse control and had difficulty in falling asleep.

The case first began smoking hashish in his high-school years and started to live in America after finishing the high-school. When living there, he added morphine, LSD, ecstasy and metamphetamine to his hashish. He consulted a physician in 2009 complaining about his back pain and he was diagnosed with Schearman syndrome by the physician who advised him to use 30 mg/g of oxycodone and 20 mg/G of diazepam. As his pain did not stop, the patient gradually increased his dose of oxycodone up to 80 mg/G through unlawful ways. The patient continued to take diazepam and the other substances alongside oxycodone and decided to return to Turkey in 2010. A week before he returned to Turkey, he stopped taking oxycodone, diazepam and all the other substances and began using 24 mg/G of...
Buprenorphine / Naloxone combination (Suboxone), but he could not find Suboxone in Turkey. When his pains increased again, he consulted a pain clinic and was administered paracetamol and tramadole, but since his complaints did not stop, a transition was made to Fentanyl (Durogesic) 12 mg/G therapy. In time, the patient increased the fentanyl preparation he had been using to a dose of 200 mg/G on his own. The algology specialist whom he consulted to request prescription of the drug in higher doses directed him to the Substance Abuse Outpatient Clinic thinking that he might have developed addiction.

No psychiatric disease was found in the patient's personal and family history. The patient was bedded in the Addiction Treatment Unit and the results of his routine tests (hemogram, biochemistry, hormone levels) were at normal limits and his neurological examinations were assessed as ordinary. It was found out that the patient had used 200 mg of transdermal fentanyl orally by sucking the transdermal patch on the day when he was hospitalized at the clinic. On the second day of his hospitalization, the patient started having withdrawal symptoms including dispersed body pains, nasal discharge, lacrimation, piloerection, fine tremor in hands, mydriasis, sweating, emesis, uneasiness and anxiety, and he was administered Suboxone 4 mg and since his symptoms were not relieved the dose was increased to 8 mg. A symptomatic treatment was administered for his continuing complaints. The second day started with 8 mg Suboxone therapy and the complaints were evaluated, then the dose was increased to 16 mg/G in line with the treatment program of our clinic. The dose was then held stable because the withdrawal symptoms were relieved completely at this dosage.

**DISCUSSION**

Opioids are very effective in reducing backache\(^{(31,37,9,5,23,20)}\). Pain treatment with fentanyl transdermal matrix effectively improves sleep disorders and impairments of daily and social activities. Many clinicians hesitate to use opioids in treating pain because of its side effects, increasing tolerance and potential risk of addiction\(^{(11)}\). However, depression and anxiety may develop in patients with chronic low back and back pain\(^{(3,7)}\).

In a review study made by Strain and associates, it was found that 15% to 23% of the patients with chronic pain met the criteria for substance abuse and it was noted that continuing to give the medication to these patients could lead to problems\(^{(32)}\). The patient in our case also gradually increased his dose of fentanyl which was initially given in small doses for treating his pain and he developed addiction.

Some of its pharmacological characteristics enable buprenorphine to be used safely and effectively in treating opioid addiction\(^{(27,35)}\). For example, its partial mu-opioid receptor agonistic effect causes emergence of a more limited respiratory depression as compared to other full agonistic opioids\(^{(26,36)}\) and its long plasma half life and slow separation from receptors enable it to be active for a longer period\(^{(8,21)}\). Therefore, it can be administered once a day or on alternate days\(^{(15,4)}\). Moreover, clinical studies have demonstrated that the combination formed by adding naloxone to buprenorphine tablets in proportions of 2:1 and 4:1 reduces the risk of abusing the drug\(^{(16,28)}\).

Any abnormal behavior demonstrated by a patient in relation to his/her use of drugs should raise suspicion about substance/drug addiction or abuse. For example, selling prescription drugs to others, falsification on prescriptions, stealing or borrowing drugs from other patients, using oral forms by way of injection, obtaining drugs from sources outside the hospital, saying a number of times that they have lost the prescription and requesting a new one, trying to obtain prescriptions from different clinicians
repeatedly, experiencing recurring problems in their family and social lives and their working environment and resisting to any changes in treatment despite their physical and mental problems may all be a clue\(^{(24)}\). The case presented also stated that he had used some of these means to obtain fentanyl.

Going through the literature, one can see that a number of risk factors were pointed out in relation to opioid abuse. These include having a personal or family history of substance use, being young, having criminal and/or legal problems (for example drunk driving), having close contact with high-risk users, having previously experienced problems with colleagues, family members or friends, having a history of risky usage and substance seeking behavior, smoking, having a history of severe depression and anxiety, having many social stressors and having a history of a previous drug/alcohol treatment\(^{(24)}\). Our case is also in the high-risk group for opioid addiction since he has a history of previous use of many substances, he is smoking and has mental and physical complaints.

For the patients who will be administered opioid for treating their chronic pain, Gourlay and associates recommended the following in that order: making a correct diagnosis before anything else, making a mental assessment, evaluating the risk of addiction, agreeing with the patient about the treatment and obtain his/her consent, evaluating the patient's pain and daily activities regularly and starting the opioid therapy after all these and monitoring the patient closely and in detail will minimize the risk of addiction and abuse\(^{(12)}\). It was reported in a meta study evaluating 24 trials made on patients with chronic pain that developing addiction was not frequent in this patient group, the rates ranging between 3.2% and 18.9%\(^{(17)}\).

It was decided in the United States of America at the beginning of 2012 that physicians would complete an assessment form containing a diagnosis and treatment plan and opinions before starting to use opioids in CNCP and it was planned to convert this into a law and put it into force. The law also requires that if 120 mg/G of morphine or other opioids of equivalent dose are prescribed, the patient file must contain the written consent and periodic evaluations of the patient, the training process of the physician who prescribed the long-acting opioid and the consultations made with the pain specialist\(^{(33)}\).

When it was explored how those who were using prescription drugs without a medical justification could reach such drugs, it was found that 50% of the users obtained them usually from their friends and relatives free of charge. When they were asked from where they obtained the drugs, 80.7% of them stated that they obtained it from a single physician, whereas only 1.6% stated that they obtained them from a drug seller or a stranger against cash\(^{(30)}\). A case presentation regarding fentanyl addiction was also made in our country. It was reported in this presentation that the patient was a former hashish addict and started using the fentanyl patches prescribed for his wife who had a chronic pain due to lung cancer\(^{(18)}\).

The “opioid contracts” are used frequently especially when it is planned to prescribe opioids for long-term use. Such contracts may be preferred in situations where the physician does not know the patient and thinks that there is a risk of abuse. These
contracts increase patient compliance and are helpful for stopping the opioid therapy in case of incompliance. The contracts may be in a written or verbal form. Verbal contracts should be noted in patient files and written contracts should be prepared in duplicate to be given to the patient and the physician. There are publications mentioning that opioid contracts increase compliance and primary care physicians feel more comfortable when prescribing opioids if there is an opioid contract signed by a pain specialist.

In conclusion, although various risk scales are used to determine the rate of addiction when using opioids in CNCP, it is still difficult to estimate which patients would develop addiction. A broad assessment and follow-up is needed in patients using opioids for chronic pain. Major measures to prevent development of addiction would include making a treatment protocol with those patients having a high risk of abuse and addiction, making an agreement for opioid use as mentioned in the protocol, carrying out regular urine tests, evaluating compliance with the checklist, counting the prescribed drugs and providing psycho-training to the patients. If those opioids that are used based on a medical report in particular are prescribed by more than one physician in an uncontrolled manner in our country where family medicine is becoming widespread, this may aggravate the problem of opioid analgesic abuse/addiction in our country as it happened abroad.

The Online Journal of Neurological Sciences (Turkish) 1984-2013
This e-journal is run by Ege University Faculty of Medicine, Dept. of Neurological Surgery, Bornova, Izmir-35100TR as part of the Ege Neurological Surgery World Wide Web service.

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Received by: 10 January 2013
Revised by: 01 March 2013
Accepted: 01 August 2013


