Case Report

MEDICINE PALLIATIVE CARE

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A rare complication of central fascial paralysis associated with quinolone

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ABSTRACT

Quinolones, which are broad-spectrum antibiotics, are frequently preferred in the treatment of infections. In infections developing in immunosuppressed patients, side effects of quinolones, which are started empirically without determining the agent and etiology, are also quite common. In this article, central facial paralysis due to ciprofloxacin initiated for anal abscess in an immunosuppressed patient receiving chemotherapy for multiple myeloma is described, and we aim to draw attention to this rare side effect. To the best of our knowledge, this is the first case reported in the literature.

Keywords: Central fascial paralysis, quinolone, ciprofloxacin

INTRODUCTION

For nearly 30 years, ciprofloxacin, one of the fluoroquinolone groups of antibiotics, has been used prophylactically and therapeutically in respiratory, gastrointestinal, genitourinary, skin, bone, ophthalmic, and soft tissue infections. Ciprofloxacin stops DNA replication by blocking the A subunit of DNA gyrase. This is how all fluoroquinolones work.[1,2] This group of antibiotics, which has a wide range of side effects, can affect many systems, such as the gastrointestinal tract, central nervous system, and skin. Dizziness, mild QT prolongation, tendinopathy, aortopathy, and phototoxic effects are common side effects.[3,4] Neuropathy findings are rare side effects.[5]

Among its neurotoxic effects, psychosis, seizures, encephalopathy, myoclonus, ataxia, dysarthria, dysarthria, chorea and oral facial dyskinesia have been reported.[6-9] However, central facial paralysis due to ciprofloxacin has not been reported before. Peripheral neuropathy is a rare side effect of ciprofloxacin, and its occurrence in many diseases complicates and delays the diagnosis. Neuropathy is a finding that increases in prevalence with increasing age, occurring in 6% of the population over 60 years of age. It is frequently seen as a symptom of some diseases or a common side effect of certain medications. While it is seen as a finding in diabetes, inflammatory, and hereditary diseases, it is a common side effect of chemotherapy drugs, some antibiotics (metronidazole), amiodarone, and phenytoin.[10] The mechanism by which ciprofloxacin causes neuropathy is not known. However, studies have found that quinolone use increases the risk of neuropathy.[11] According to the FDA, neuropathy can start at any time during ciprofloxacin treatment. It may persist for months or years after the drug is discontinued or may not resolve at all.

CASE

A 67-year-old man with diabetes mellitus, stage 2 chronic kidney disease, benign prostatic hyperplasia, and multiple myeloma He presented to the emergency department with complaints of pain in the perianal region, lower abdominal quadrants, and suprapubic region, nausea, and decreased oral intake, which had been gradually increasing for 1 week. The immunocompromised person who was being treated for multiple myeloma with bortezomib dexamethasone thalidomide was admitted to the general surgery ward with a perianal abscess already known. The investigations revealed elevated CRP and leukocytosis. The broad-spectrum antibiotic ciprofloxacin (2*400 mg IV) was started. The abscess was drained. Him complaints decreased after the drainage. Facial asymmetry, which was more pronounced when speaking, and lisping in speech started 24 hours after ciprofloxacin was started. He was evaluated by a neurology physician with a detailed examination. No other etiologic cause was found in the patient who developed left central facial paralysis. In the etiology of central facial paralysis, there

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was no evidence of lymphopenia/lymphocytosis, rash, stomatitis, oral ulcers, otitis, sinusitis, conjunctivitis, tonsillitis, or hepatosplenomegaly specific to viral infections. The patient did not clinically suggest a viral infection, and viral markers were not tested. Apart from a perianal abscess, no other infectious foci were identified, and no systemic signs were observed. In the absence of autoimmune disease diagnosis, symptoms, or history, the elevated acute phase reactant was considered secondary to an infection. Brain CT and diffusion MRI imaging for vascular etiology showed no evidence of ischemic cerebrovascular disease or vascular malformations. No neoplastic findings were observed in the imaging. The patient does not have a history of trauma or congenital diseases. Blood tests revealed no electrolyte imbalance or acute renal failure. However, it was thought that acute central facial paralysis might be one of the rare neurotoxic side effects of ciprofloxacin, which had been recently started, and ciprofloxacin antibiotherapy was discontinued. Ampicillin-sulbactam antibiotherapy was started. The patient was not using steroids. Approximately 48 hours after ciprofloxacin was discontinued, the facial asymmetry resolved spontaneously. It was evaluated as short-term central facial paralysis due to ciprofloxacin.

DISCUSSION

Neuropathy occurs as a side effect of many drugs. Many drugs, such as chemotherapeutics, antiretroviral agents, statins, and cardiovascular drugs, have neurotoxic side effects, especially affecting peripheral nerves, which play a role in the etiology of neuropathy. In previously reported cases, the peripheral neuropathy effect of ciprofloxacin has been mentioned, and in the pathogenesis, it has been found that the dorsal root ganglia and epineural blood vessels in the peripheral nervous system are vulnerable to toxins.[12] The incidence of drug-induced neuropathy has not been clearly demonstrated. This is because the severity and symptoms of the underlying disease may have suppressed the symptoms of neuropathy. In a cancer patient receiving chemotherapy, drug-induced neuropathies such as paresthesia may be detected early or late, depending on the relationship between the physician and the patient. Early detection of neurotoxic side effects suggests that symptoms may improve earlier and the permanent or prolonged effects of neuropathy may be prevented.[12,13] Morales et al.[14] showed that the incidence of quinolone-associated neuropathy increased by 1.7% compared to non-quinolone users. The relative incidence increased by 3% for each additional day of quinolone use. Etminan et al.[11] showed that the risk of peripheral neuropathy increased with fluoroquinolone use.

Our patient had a diagnosis of multiple myeloma and a history of bortezomib use. Neurotoxic side effects such as paresthesia are common with bortezomib use, but in our case, the last dose of the drug was administered 2 weeks before the development of an anal abscess, and there were no neurologic symptoms before ciprofloxacin. The patient also had a diagnosis of diabetes mellitus. He had no previous symptoms of diabetic peripheral neuropathy, and his blood sugars were regulated. In a patient with chronic kidney disease, there may be an increase in the neurotoxic effect of the drug due to its accumulation. Bortezomib use, diabetes, and chronic kidney disease may have facilitated the neuropathy effect of ciprofloxacin. Symptoms resolved spontaneously after drug discontinuation. No additional treatment including steroids was given.

The FDA has recommended immediate discontinuation of fluoroquinolone-induced neuropathy. Symptomatic treatment may be given in cases where neuropathy symptoms are severe and prolonged. Since the pathogenesis has not been elucidated, there is no consensus on a specific treatment. In a patient who developed palatal tremor due to ciprofloxacin, sodium valproate was administered after discontinuation of the drug, and symptoms resolved after 2 days.[15] In a patient who developed psychosis due to ciprofloxacin, symptoms resolved spontaneously 24 hours after discontinuation.[16] In a patient who developed ciprofloxacin-induced peripheral neuropathy, intravenous immunoglobulin, steroids, and physical therapy rehabilitation were administered, and significant improvements were observed in control electromyograms. 5 Many drugs, such as lidocaine, methadone, ketamine, acetaminophen, gabapentin, and fentanyl, have been tried for treatment, but their efficacy has not been demonstrated.[17,18]

The limitations in the diagnosis of this patient include the lack of viral marker testing and the absence of electromyography (EMG). Viral marker testing was not performed because there was no clinical suspicion of a viral infection. EMG could not be conducted because it was not performed at the center where the patient was admitted.

CONCLUSION

Ciprofloxacin is a neurotoxic antibiotic with the side effect of neuropathy. The symptom scale is ambiguous, and early detection of neuropathy and discontinuation of ciprofloxacin treatment may lead to an earlier resolution of symptoms. More studies are needed to elucidate the pathogenesis and solve the mechanism of neuropathy.

ETHICAL DECLARATIONS

Informed Consent: All patients signed and free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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