

Acute Systemic Toxicity Following a Single Dosage of Tenoxicam

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Abstract: Pain and painful events are the top complaints among reasons for referral to a physician. Analgesics and non-steroidal anti-inflammatory drugs (NSAIDs) are the most commonly prescribed drugs following antibiotics. In spite of all efforts and scientific steps, arthritis and drug use are challenging subjects for mistakes and their selection, with advanced approaches often changing. It may be useful to look over worldwide statistics in order to define the magnitude of the problem. For osteoarthritis and rheumatoid arthritis, which are common, the prevalence is 10-20% and 1-2%, respectively, and at least half of these patients use NSAID. The prevalence of NSAID usage in the community has been calculated as 5%. In this article, we present an 81-year-old patient who had a single dose of tenoxicam injection for osteoarthritis with subsequent deterioration of clinical and laboratory parameters. The patient's laboratory results were consistent with acute renal failure and liver failure. The patient, developed multiorgan failure despite the treatment, was considered exitus on the 6th day of the treatment. Clinicians should keep in mind that NSAIDs may have systemic toxic effects. Because, these drugs can cause mortality if not initiated early treatment.

Keywords: Analgesics, tenoxicam, osteoarthritis, rheumatoid arthritis

INTRODUCTION

Pain and painful events are the top complaints among reasons for referral to a physician. Analgesics and non-steroidal anti-inflammatory drugs (NSAIDs) are the most commonly prescribed drugs following antibiotics. In this article, we present an 81-year-old patient who had a single dose of tenoxicam injection for osteoarthritis with subsequent deterioration of clinical and laboratory parameters. The patient's laboratory results were consistent with acute renal failure and liver failure. The patient, developed multiorgan failure despite the treatment, was considered exitus on the 6th day of the treatment. Clinicians should keep in mind that NSAIDs may have systemic toxic effects. Because, these drugs can cause mortality if not initiated early treatment.

CASE REPORT

An 81-year-old woman with osteoarthritis was injected with a single dose of tenoxicam due to a knee pain, and her general condition deteriorated after 24 hours. Biochemical evaluation revealed severe anemia (hemoglobin: 10.6 g / dL, hematocrit: 30.2%, erythrocyte sedimentation rate 90 mm / hour, LDH: 1029 U / L, total bilirubin: 4.2 mg / dL, indirect bilirubin: 2.8 mg / dL) and acute renal failure (BUN: 65 mg / dL, creatinine: 2.53 mg / dL, uric acid: 7.8 mg / dL) with elevated liver enzymes (AST: 407 U / L, ALT: 244 U / L). In addition, direct and indirect Coombs tests were positive, and INR was high (2.9).

The patient was clinically hypotensive, anuric and icteric, with acidotic respiration, and dehydrated mucosa. Isotonic solution to hydrate the patient, dextrose-containing fluid replacement to support the liver, amino acid-containing hepatamin solution and fresh frozen plasma were administered. The patient underwent intermittent hemodialysis due to hyperkalemia and anuria. After the ongoing supportive treatment, the patient died from a cardiac arrest despite all interventions on day 6 of the treatment, and considered exitus.

DISCUSSION

Pain and painful events are the top complaints among reasons for referral to a physician. Analgesics and non-steroidal anti-inflammatory drugs (NSAIDs) are the most commonly prescribed drugs following antibiotics. In spite of all efforts and scientific steps, arthritis and drug use are challenging subjects for mistakes and their selection, with advanced approaches often changing. It may be useful to look over worldwide statistics in order to define the magnitude of the problem. For osteoarthritis and rheumatoid arthritis, which are common, the prevalence is 10-20% and 1-2%, respectively, and at least half of these patients use NSAID. The prevalence of NSAID usage in the community is calculated as 5%. The NSAIDs whose general effects are listed above may act in two ways:

- Cyclooxygenase (COX)
- Lipoyxygenase.

COX enzyme activity controls the pathway from membrane phospholipids to prostaglandin synthesis, inhibiting the synthesis of prostaglandin by NSAID and the synthesis of leukotriene by lipoxygenase. When inhibiting of an inflammation, the main route of suppression by classical NSAIDs is the COX inhibition. General Mechanisms of Action for NSAIDs include COX inhibition, suppression of prostaglandin synthesis, inhibition of lipoxygenase: suppression of leukotriene synthesis, suppression of superoxide production, suppression of lysosomal enzyme release, inhibition of hydrogen peroxide production, inhibition of phospholipase-C activity in cell membrane, acting on cartilage metabolism, chondroprotective or chondrodestructive effect, lymphoid transformation and reduction of DNA synthesis, central analgesic effect, suppression of bradykinin-dependent inflammatory events, anti-inflammatory peptide formation from plasma proteins, inhibition of signals necessary for neutrophil aggregation and activation, inhibition of granulocyte-monocyte migration and phagocytosis [1]. The most serious side effects of NSAIDs include hematological reactions (aplastic anemia, thrombocytopenia, agranulocytosis, and hemolytic anemia), erythema multiform and hypersensitivity reactions such as hepatitis [2-5]. The renal effects of NSAIDs in patients especially with varying degrees of renal dysfunction usually result from altered hemodynamics due to inhibition of renal prostaglandin production. Such process may occur as fluid and electrolyte imbalance, acute renal failure, nephrotic syndrome, interstitial nephritis, or renal papillary necrosis [6]. After the ongoing supportive treatment, the patient died from a cardiac arrest despite all interventions on day 6 of the treatment, and considered exitus.

As a result, systemic toxicities such as hemolytic anemia, elevated liver enzymes and acute renal failure occurred in our patient after administration of tenoxicam. Early treatment should be initiated in order to avoid any possible complications considering the fact that NSAID may have such side effects.

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