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American Journal of Emergency Medicine

journal homepage: www.elsevier.com/locate/ajemThe
American Journal of
Emergency Medicine

Case Report

Anaphylaxis after intramuscular injection of diclofenac sodium

Abstract

Diclofenac sodium is a 2-arylacetic acid, nonsteroidal anti-inflammatory drug. It is widely used in pain management. Side effects such as urticaria, asthmatic attack, vasospastic angina, ischemic stroke, and Kounis syndrome may be seen after the use of diclofenac sodium. However, anaphylactic shock is rare. Anaphylactic shock secondary to injection of diclofenac sodium can be treated successfully with intramuscular injection of adrenaline. Because diclofenac sodium is commonly used in analgesic treatment in emergency departments, we present this case report to emphasize that anaphylactic shock may be seen after the use of that drug.

Diclofenac sodium (DS) is a 2-arylacetic acid, nonsteroidal anti-inflammatory drug [1]. It is widely used in pain management [2] and is commonly preferred by both clinicians and patients because its effect starts in a few minutes [3,4]. This drug has been used and found to be safe by 7.6 million people yearly [5]. Anaphylactic shock secondary to DS is rare [6]. However, side effects such as urticaria, asthmatic attack, vasospastic angina, ischemic stroke, and Kounis syndrome may be seen after intramuscular injection of the drug [7–11]. In our case report, we present an instance of anaphylactic shock occurring after intramuscular injection of DS and its successful treatment.

A 68-year-old male patient with abdominal pain in the right upper quadrant was admitted to our emergency department (ED). The patient had no chronic disease, and he had not been taking any drugs, nor did he have any drug allergy history. In his physical examination, there was some tenderness to palpation on his right upper quadrant, but neither abdominal defense nor rebound was present. The rest of his physical examination was normal. White blood cell count and bilirubin levels were found to be normal in his laboratory studies. A gallstone was seen in his gallbladder with abdominal ultrasonography. The general surgery department was consulted, and the general surgeon decided that the patient did not need any surgical treatment. Then, DS 75 mg (Voltaren 75 mg/3 mL Ampul; Novartis, Stein-AG, Swiss) was administered intramuscularly for pain management. The patient was taken to the observation unit. After 10 minutes, confusion, tachypnea, tachycardia (pulse rate, 170 beats per minute), hypotension (blood pressure, 50/30 mm Hg), and uvular and mucous membrane edema developed, so he was diagnosed as having anaphylactic shock. Adrenaline 0.3 mg and pheniramine maleate 45.5 mg (Avil 45.5 mg/2 mL; Sandoz, Kurtkoy, Istanbul/Turkey) were administered intramuscularly. Two intravenous lines were established on the upper extremities, and a saline solution was given through both of them. The patient's clinical condition improved, and his symptoms declined in the following hours. He was given the information that he has an allergy to DS and was discharged after a 12-hour follow-up in the observation unit.

Diclofenac sodium is widely used in pain management [2]. Common side effects of DS include gastrointestinal hemorrhage, hepatosteatosis,

and severe local infections in injection sites [2,9]. In addition, urticaria, asthmatic attack, vasospastic angina, ischemic stroke, and Kounis syndrome may be seen after intramuscular or peroral administration of DS [2,7–11]. Besides nonspecific allergic reactions such as hypotension, dizziness, vomiting, and fever, anaphylactic shock may also be seen [10]. Although the probability of allergic reactions after intramuscular injection of DS is 0.04%, it is said that the risk is smaller when it is given through the peroral or rectal route. Most of the population believes that the effects of a drug appear more quickly and strongly when the drug is given intramuscularly than when it is given perorally. However, DS is absorbed rapidly after oral administration. Its peak plasma levels are achieved after 20 minutes when it is used perorally and, after 15 minutes, when it is used intramuscularly [12]. Therefore, the risk of allergic reactions can be decreased by choosing the peroral route instead of the intramuscular route [3]. Four thousand intramuscular DS administrations are performed monthly in our ED, as DS is commonly used in pain management in the department. Thus, the risk of allergic reactions after use of DS is present, as in the case of our patient who developed anaphylactic shock after intramuscular administration of the drug. If oral administration is chosen, being nearly as effective and as fast as the intramuscular route, the risk of such allergic reactions may be decreased.

Urticaria, respiratory distress, wheezing, cough, stridor, hypoxia, vomiting, hypotension, and edema of lips and uvula may be seen in anaphylaxis. Edema of lips, mucous membranes, and uvula as well as dyspnea and hypotension were present in our patient.

An adult patient with anaphylactic shock is treated with 0.3 to 0.5 mg adrenaline (1:1000 solution) by intramuscular injection, after the airway is secured and spontaneous respiration and circulation are checked. An intravenous normal saline infusion at a rate of 5 to 10 mL/kg of body weight is given within 5 to 10 minutes, and simultaneously, 100% oxygen is given with a face mask at a rate of 6 to 8 L/min. Cardiac functions, respiratory condition, and blood pressure are monitored [13]. Pheniramine maleate was given intramuscularly together with adrenaline in our patient because he did not have any intravenous lines when he developed anaphylaxis. He was also given oxygen. Intravenous lines were inserted as quickly as possible, and normal saline infusion was started. Edema of lips, mucous membrane, and uvula had subsided, and hypotension was resolved during his follow-up. The patient was treated successfully and discharged without any sequelae.

In conclusion, DS is commonly used intramuscularly in pain management. Anaphylactic shock may develop after such administrations, although it is rarely seen. Emergency department physicians should know that anaphylaxis may be seen in their patients to whom they administer DS.

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<http://dx.doi.org/10.1016/j.ajem.2013.12.049>