

## Case Report

# Adrenaline, Aspirin, And Corticosteroids Should Be Administered Mindfully While Treating Myocardial Infarction and Kounis Syndrome

Nicholas G. Kounis<sup>1</sup>, Virginia Mplani<sup>2</sup>, Maria Bozika<sup>1</sup>, Ioanna Koniari<sup>1</sup>

1. Department of Medicine, division of cardiology, University of Patras Medical School, Patras, Greece

2. Intensive Care Unit, University of Patras Medical School, Patras, Greece

\*Correspondence: [ngkounis@otenet.gr](mailto:ngkounis@otenet.gr)

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In the important case report by Sirsha Chatterjee et al [1], a 44-year-old Indian woman developed dizziness, widespread weakness, profuse perspiration, pressure in her chest, epigastric pain, and widespread, itchy rashes on her face one hour after ingesting oral amoxicillin clavulanate. The provisional diagnosis was Kounis syndrome. The patient began receiving, among others, medications including adrenaline nebulization, intravenous hydrocortisone, and oral aspirin. The High-sensitive troponin was raised, but coronary angiography was not performed because the patient refused further cardiac workup. This report raises serious issues with the usage of adrenaline, aspirin, and hydrocortisone. These medications, which are used to treat Kounis syndrome, myocardial infarction, or thrombosis [2], paradoxically have the potential to trigger these diseases: The authors' decision to provide nebulized adrenaline while continuously monitoring the electrocardiogram in order to reduce cardiac consequences is sound. However, since intramuscular adrenaline, the cornerstone of treatment for anaphylaxis, can exacerbate coronary spasm and ischemia, it should be avoided in Kounis syndrome. Indeed, all commercially available versions of epinephrine contain sodium metabisulfite as a preservative [3]. Sodium metabisulfite can result in allergic contact dermatitis, anaphylaxis, hives, or asthma either immediately or over time. Fortunately, free sulfite adrenaline, FDA-approved, is now available to sulfite-sensitive patients from a commercial source (American Regent Inc., USA) [4]. In particular, according to international recommendations, individuals should receive no more than 0.5 mg of exogenous adrenaline intramuscularly, with a dosage of 0.01 mg/kg of a 1:1000 (1 mg/mL) solution. This process has the potential to save lives. Aspirin produces allergic-type responses by blocking the cyclooxygenase-1 (COX-1) enzyme, which diverts arachidonic acid metabolism to produce more leukotrienes, rather than by causing a genuine immunoglobulin E-mediated allergy. Symptoms such as nasal blockage, urticaria (hives), and bronchospasm are directly brought on by these excess leukotrienes. Aspirin can result in Kounis syndrome despite its beneficial benefits on cardiovascular diseases. The Samter-Beer trio is a confluence of aspirin allergy, asthma, and nasal polyps that results in myocardial infarction and vasospasm syndrome and concentrate treatment on minimizing the allergic reaction. A case of Kounis syndrome due to asthma caused by aspirin use, intended to treat angina pectoris, is reported in another article [5]. Additionally, another report presents a case study of a patient with a history of aspirin allergy who had coronary vasospasm following an aspirin dose [6]. While corticosteroids are commonly used to treat allergic reactions, they can also result in acute, delayed, local, or systemic allergic reactions as well as anaphylaxis with Kounis syndrome [7]. Indeed, systemic corticosteroids can trigger allergy responses through the following pathways:

- a. Anaphylactic responses involving IgE antibodies to methylprednisolone have been documented.

- b. Methylprednisolone and succinate esters of hydrocortisone are the drugs that most frequently result in type 1 (immediate) adverse reactions.
- c. Because succinate esters are more soluble in water and have a higher affinity for serum proteins, they facilitate the hapten production and act as a complete antigen.
- d. Methylprednisolone and hydrocortisone succinate esters are the drugs that most frequently result in type 1 (immediate) adverse reactions.

In fact, two patients experienced anaphylactic shock with cutaneous and systemic symptoms following methylprednisolone succinate pulse therapy for neuromyelitis optica and systemic lupus erythematosus [8]. After receiving 1 milliliter of triamcinolone acetonide intra-articularly, a 52-year-old woman who had previously shown that she was allergic to anti-haemorrhoid lotions and ointments developed a broad symmetrical pruritic eruption [9]. We suggest that, for Kounis syndrome to be diagnosed and prevented as soon as possible, all physicians should be aware of these distinct clinical entities and associated behaviors.

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