

Desensitization with aspirin as a successful treatment for a patient with aspirin exacerbated respiratory disease

Abstract

The aspirin-exacerbated respiratory disease (AERD) comprises a set of signs and symptoms that mainly involve the upper and lower airway after consumption of inhibitors of the cyclooxygenase enzyme (COX). An adequate diagnosis is essential confirmed by provocation tests; as well as, educating the patient in the use or elimination of the different NSAIDs, and the use of an analgesic alternative. Its management includes pharmacological treatment for asthma control, surgical procedures for the control of nasal polyps, and desensitization with aspirin in selected individuals. Here, we present a successful case of desensitization to AINES. Following a nine-hour protocol, in a 56-year-old patient diagnosed with AERD; Tolerance to NSAIDs and symptom control was successfully achieved.

Keywords: cyclooxygenase enzyme, NSAIDs, hypersensitivity reaction, chronic rhinosinusitis, asthma, nasal polyps, desensitization to aspirin

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Abbreviations: AERD, aspirin exacerbated respiratory disease; ASA, acetylsalicylic acid; NSAID, non steroidal anti inflammatory drugs

Introduction

The presence of bronchial asthma, chronic rhinosinusitis (CRS) with nasal polyps, and a hypersensitivity reaction of the airway to aspirin (acetylsalicylic acid-ASA), as well as other non-selective inhibitors of the cyclooxygenase enzyme (COX),¹⁻³ commonly characterizes the Aspirin-exacerbated respiratory disease (AERD). It is within the broad spectrum of hypersensitivity reactions induced by non-steroidal anti-inflammatory drugs (NSAIDs), in minutes after administration. The prevalence of AERD is unknown, although, it is estimated that it can affect between 5.5% and 12.4% of the general population.⁴ The exact prevalence of nasal polyps is not known. However, it is estimated that it can be around 100%.^{5,6} For the diagnosis, the clinical history of hypersensitivity reaction, exacerbation type of asthma or secondary rhinitis to the consumption of NSAIDs is highly suggestive of AERD, especially if there is the presence of anosmia and nasal polyps. Provocation with inhibitors of COX,⁷⁻⁹ makes the confirmation. This challenging test is mainly performed with aspirin, although protocols with other NSAIDs such as ketorolac also exist.⁵ The administration route can be oral, nasal, bronchial and intravenous inhalation.^{10,11}

The management of AERD is multidisciplinary and depends on the condition and severity of the patient, which includes educating the patient, avoiding some NSAIDs, medical treatment and sometimes including surgical procedures for the control of nasal polyps, pharmacological treatment for the control of asthma and desensitization with aspirin in selected individuals.^{1,5,8} Because asthma may have other exacerbates, continuous use of the controller treatment must be guaranteed. Desensitization with aspirin is adequate for the short and long-term control of the disease.¹²⁻¹⁴ Its objective is

to induce a temporary state of drug tolerance; however, it must be administered daily to conserve said status.^{15,16} The suspension of the medication greater than 72 hours requires new desensitization. Ideally, desensitization should be carried out between two to four weeks after polypectomy. It is a procedure with a potential risk of producing bronchospasm, laryngospasm, skin and gastrointestinal symptoms, so it must be performed by a specialist doctor in the area and at an adequately equipped place. Several protocols differ by interval time between doses,¹³ which is increased every 90 minutes, over a period from hours to days to reach 650 mg without presenting reactions.^{11,15,17-20} The optimal maintenance dose has not been established and must be individualized in each patient.^{14,20} There are also different progressive reduction schemes; after time, if there is an improvement in symptoms, a decrease can be started.^{11,15,17} Those patients who do not tolerate the reduction will manifest a worsening of symptoms in the following two weeks.²¹ Doses of 81 mg may be sufficient to maintain the state of tolerance in those patients that require cardioprotection. However, it is a suboptimal dose for the control of inflammation in the airway.¹⁷ Below is a case, where a desensitization protocol followed in a patient diagnosed with AERD has been successful for the last six years.

Case presentation

A 56-year-old male patient referred to an allergology unit for rhinorrhea, sneezing, obstruction, frontal headache, pain in the jaws and posterior drainage with one year of evolution. At the time of the consultation, he was under nasal steroid, antihistamine and oral antibiotic treatment without clinical improvement. One month earlier he had presented an episode of bronchospasm, and after naproxen consumption, he had an exacerbation of his nasal symptoms. Previously, similar clinical features with ibuprofen and diclofenac had been presented, and he tolerated 1 gram of acetaminophen. Within his clinical history, there is polypectomy evidence (two months ago)

and a hospitalization for a Stevens - Johnson syndrome secondary to piroxicam. At the time of the physical examination, the erythematous nasal mucosa, turbinate hypertrophy, scarce serous posterior drainage and no evidence of new nasal polyps were observed. He was diagnosed with AERD with an oral challenge; the nasal steroid and the antihistamine were changed. A nine-hour desensitization protocol²⁰ was performed, starting with 40 mg and reaching a 650 mg total dose of Aspirin.²² Continuing with doses of 650 mg every 12 hours and with a subsequent gradual decrease in the medication. Currently, six years after desensitization, the patient continues with a maintenance dose of 81 mg of Aspirin every 12 hours and annual clinical follow-up. The patient refers an adequate control of his symptoms, without growth evidence of new polyps, or adverse reactions to the medication.

Discussion

Patients with AERD can experience a variety of symptoms^{23,24} like nasal congestion, rhinorrhea, wheezing, bronchospasm, cutaneous symptoms, as well as present facial pain, postnasal drip, headache, dental pain, the sensation of otic pressure and halitosis, some of these, were found in the case reported. The course of the disease is chronic, with symptoms that are difficult to manage, resistant to pharmacological treatment,⁵ and it is considered a severe upper airway disease when adequate control of symptoms is not achieved despite adequate medical treatment,²⁴ similar as described in the clinical history of the patient. Similar to what is reported in literature,^{12,13} desensitization with aspirin is proved to be an effective therapy for the long-term control of nasal polyps; like in this clinical case, where the control for up to six years was successfully achieved. Demonstrating improvement in the quality of life, smell, and score of nasal and bronchial symptoms; in addition to reducing the need for systemic steroid use, as well as infectious sinusitis episodes.^{12,14-25} There is sufficient evidence for the use of desensitization. However, it should be used when other therapeutic options are no longer available in the selected patients, due to the long-term risk of chronic use of COX-1 inhibitors, and the high risk of adverse reactions. In conclusion, the patient was correctly treated for AERD, as it is a chronic, complex disease that requires a high index of suspicion for its diagnosis, and careful management, with a successful desensitization.

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Conflict of interest

The authors declare that there is no conflict of interest.

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