

Therapeutic management in Kounis syndrome: allergen immunotherapy adjuvant to antithrombotic therapy

Manejo terapéutico en Síndrome de Kounis: tratamiento inmunológico coadyuvante al tratamiento antitrombótico

To the editor:

Kounis syndrome (KS) was described in 1950¹ and consists of the appearance of an acute coronary syndrome within the context of an allergic reaction². Its treatment is currently controversial^{2,3}.

A 44-year-old male smoker with a family history of ischemic heart disease. A few minutes after a sting, he developed bronchospasm and syncope. The 061 emergency service, given the hypotension (blood pressure 60/30 mmHg) and suspicion of severe anaphylaxis, initially administered 1 mg of adrenaline im. The first electrocardiogram showed sinus rhythm with narrow QRS and ST-segment depression of 3 mm in leads V4 to V6. Aspirin, clopidogrel, fondaparinux and iv methylprednisolone were administered, resulting in clinical and electrocardiographic normalization on arrival at the emergency department. The peak troponin level was 609 pg/mL. The echocardiogram showed a left ventricle with inferolateral hypokinesis in the middle segment and the angio-CT (computed tomography) study showed severe stenosis in the middle segment of the anterior descending artery (DA) and moderate stenosis in its bifurcation and in the circumflex artery due to atheromatous plaques. Coronary angiography confirmed significant stenosis in the middle DA artery (bifurcation of the diagonal artery, in origin and posterior bifurcation). An everolimus-coated stent was directly implanted in the DA artery, subsequently recrossing the catheter at the origin of this artery, treated with balloon and achieving TIMI III flow. After a good clinical evolution, he was discharged with a diagnosis of KS type II and coronary artery disease of one vessel revascularized with a drug-eluting stent. In the allergological study at 6 weeks⁴ skin tests were positive for *Polistes dominulus* (the most common wasp in the Mediterranean region)⁴; positive IgE to wasp 4, 86 KU/L and Pol d 5 (a major allergenic protein of

polistes and of the composition of ITE)^{4,5}, 1.74 KU/L. Subcutaneous administration of allergen immunotherapy (ITE) was started, in weekly ascending and progressive doses until the maximum dose was achieved (Pharmalgen 100% POLISTES, ALKAbelló®, 100 µg)⁵. Subsequently, the patient was stung without reproducing the clinical complications described. Both IgE (to *polistes* and pol d 5) progressively decreased until they became negative after 2 years. The effectiveness of ITE was observed at the clinical level, with no IgE-mediated anaphylaxis to new stings⁵ that could induce new thrombotic or vasospastic events^{1,3} and at the immunological level, due to the progressive decrease in IgE antibodies to the triggering hymenoptera^{4,5}.

This is the first documented clinical case of a patient treated with allergen immunotherapy adjuvant to percutaneous revascularization treatment in type II KS due to wasp infection, the effectiveness of which prevented subsequent anaphylaxis^{4,5} that could have acted as a factor inducing new ischemic episodes. In addition to the potential benefit of the immunotherapy implemented, the importance of the percutaneous revascularization performed should be highlighted, since the clinical repercussions of a second allergic event after correcting the lesion of the anterior descending artery would probably have been different. Therefore, in the absence of agreed therapeutic guidelines, coronary syndrome should be treated in the first instance in the presence of KS, followed by symptomatic treatment of the anaphylactic reaction. Clinical suspicion, therapeutic approach and referral for allergologic study are of crucial importance. Determination of the trigger and the establishment of allergen immunotherapy as adjunctive treatment to antithrombotic therapy and coronary revascularization could prevent coronary complications in the event of new anaphylactic episodes.

Araceli Castro Jiménez¹,
Lorena Olivencia Peña²,
Rosario García García³,
Fernando Florido López¹,
Elena Torres Sánchez³,
Eduardo Molina Navarro⁴

¹Allergology Unit, Hospital Virgen de las Nieves, Granada, Spain.

²Intensive Medicine Area, Hospital Virgen de las Nieves, Granada, Spain.

³Emergency and Urgent Care Medicine, Hospital Virgen de las Nieves, Granada, Spain.

⁴Cardiology Department, Hospital Virgen de las Nieves, Granada, Spain.

maraceli.castro.sspa@juntadeandalucia.es

Conflicting interests: The authors declare no conflict of interest in relation to this article.

Contribution of the authors, financing and ethical responsibilities: All the authors have confirmed their authorship, the non-existence of external financing and the maintenance of confidentiality and respect for the rights of the patients in the document of author's responsibilities, publication agreement and assignment of rights to EMERGENCIAS. The patient has confirmed his/her consent for his/her personal information to be published.

Editor in charge: Xavier Jiménez Fàbrega.

Article not commissioned by the Editorial Committee and with external peer review.

Acknowledgments: We would like to thank the Hospital Universitario Virgen de las Nieves.

References

- 1 Conti L, Gatt K, Zammit C, Cassar K. Kounis syndrome uncovers severe coronary disease: an unusual case of acute coronary syndrome secondary to allergic coronary vasospasm. *BMJ Case Rep.* 2019;12:e232472.
- 2 Ghilencea L, Popescu MR, Ghiordanescu IM, Conea C, Melnic M, Popescu AC. Type I Kounis Syndrome after Protracted Anaphylaxis and Myocardial Bridge-Brief Literature Review and Case Report. *Diagnostics (Basel).* 2020;10:59.
- 3 Urushidani S, Kuriyama A. A potential association between myocardial ischemia and epinephrine for anaphylaxis. *Am J Emerg Med.* 2020;38:1297.
- 4 Bilò MB, Pravettoni V, Bignardi D, Bonadonna P, Mauro M, Novembre E, et al. Hymenoptera Venom Allergy: Management of Children and Adults in Clinical Practice. *J Investig Allergol Clin Immunol.* 2019;29:180-205.
- 5 Sturm GJ, Varga EM, Roberts G, Mosbech H, Bilò MB, Akdis CA, et al. EAACI guidelines on allergen immunotherapy: Hymenoptera venom allergy. *Allergy.* 2018;73:744-64.