

□ LETTERS TO THE EDITOR □

Kounis Syndrome following Food-Dependent Exercise-Induced Anaphylaxis

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To the Editor We have read with great interest the report published in this journal (1) concerning a 70-year old atopic patient with previous episodes of food-dependent exercise-induced anaphylaxis (FDEIA) who developed an acute antero-septal myocardial infarction, concurrently with erythematous rash involving the abdomen, back, and lower extremities, 3 hours after having eaten food containing wheat, to which he was allergic, followed by his usual treadmill exercise. The patient was regularly taking aspirin because he was a diabetic, smoker, hypertensive, with high triglyceride levels and previous episodes of cerebral infarctions.

The above history and clinical picture are compatible with type II variant of Kounis syndrome (2) which includes patients with culprit but quiescent pre-existing atheromatous disease.

This patient was under the influence of several risk factors for developing an acute coronary episode (gym exercise, smoking, hypertension, diabetes, hypertriglyceremia) and two allergens able to induce mast cell degranulation namely aspirin and wheat consumption. It is known that mast cell brings in its surface 500,000 to 1 million IgE molecules and in order to degranulate it needs 2,000 of these molecules, which is a critical number, in order to make 1,000 bridges by antigens and these bridges can be made by antigens of different specificities (3) as it happened in this patient.

The authors of this report questioned as to whether aspirin tended to prevent myocardial infarction or to induce it by promoting FDEIA.

Symptoms of aspirin hypersensitivity can be explained by over-production of leukotriene metabolites, since salicylate allergic patients who have come into contact with salicylates show a marked inhibition of cyclooxygenase, which is con-

tinuously expressed in the human body. This leads to a diminished production of cyclooxygenase products such as prostacyclin and thromboxane and can accelerate the metabolism of arachidonic acid towards lipoxygenase products such as leukotrienes.

Recently, comorbidity and mast cell clonality seem to be factors influencing the mast cell degranulation and the threshold of inflammatory mediator action. Indeed, it was found, that activating mutations exist in c-kit which codes for KIT, the receptor for stem cell factor which is essential for mast cell development, proliferation, survival, adhesion, and homing (4). This cascade of events results in hyper responsive mast cell phenotype with increased release of mast cells tryptase and other mediators able to induce more easily Kounis syndrome and differentiate mast cell content actions. It must be emphasized that a subset of platelets bearing FCεRI and FCεRII receptors are also involved in the activation cascade (5).

As the authors of the above report correctly anticipated that FDEIA can be complicated by Kounis syndrome, we must reiterate that this syndrome is not rare but a rarely diagnosed syndrome.

The authors state that they have no Conflict of Interest (COI).

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References

1. Yaegashi T, Nakamura Y, Sakagami S, Saeki T, Omi W, Ikeda K. Acute myocardial infarction following food-dependent exercise-induced anaphylaxis. *Intern Med* 50: 451-454, 2011.
2. Kounis NG. Kounis syndrome (allergic angina and allergic myocardial infarction): a natural paradigm? *Int J Cardiol* 110: 7-14, 2006.
3. Nopp A, Johansson SGO, Lundberg M, Oman H. Simultaneous exposure of several allergens has an additive effect on multisensitized basophils. *Allergy* 61: 1366-1368, 2006.
4. Metcalfe DD, Schwartz LB. Assessing anaphylactic risk? Consider mast cell clonality. *J Allergy Clin Immunol* 123: 687-688, 2009.
5. Hasegawa S, Tashiro N, Matsubara T, Furukawa S, Ra C. A comparison of FcεRI-mediated RANTES release from human platelets between allergic patients and healthy individuals. *Int Arch Allergy Immunol* 125 (Suppl 1): 42-47, 2001.