



Mast cell activation test for the diagnosis of rocuronium-induced perioperative hypersensitivity reactions

Grzegorz Porebski¹, Peter Kopac², Alicja Dziadowiec^{1,3}, Ana Koren², Mateusz Kwitniewski³

¹Department of Clinical and Environmental Allergology, Jagiellonian University Medical College,
Krakow

²University Clinic of Respiratory and Allergic Diseases, Golnik, Slovenia

³Department of Immunology, Faculty of Biochemistry, Biophysics and Biotechnology,
Jagiellonian University (JU), Krakow

Introduction

Mast Cell Activation Test (MAT) has recently attracted interest as a potential new diagnostic and research tool. It represents a new approach to causative diagnosis, based on cellular assays, initiated by basophil activation test (BAT). However until now, MAT was applied mostly in patients allergic to protein compounds and reports on low-molecular weights (LMW) antigens are very scarce.

Aim

We evaluated the diagnostic performance of MAT in patients with perioperative hypersensitivity due to rocuronium, which often causes these reactions and to compare it with patients allergic to birch pollen and bee/wasp venom.

Material and methods

We tested patients allergic to rocuronium, n=11; birch pollen, n=6; wasp venom, n=3, bee venom, n=3; controls, n=11.



XV MIĘDZYNARODOWY KONGRES POLSKIEGO TOWARZYSTWA ALERGOLOGICZNEGO

Diagnostic work-up involved skin prick tests, intradermal tests, serum allergen-specific IgE levels, BAT. MAT was performed using human peripheral blood-derived mast cells. Degranulation to specific and control stimulation was measured using CD63. A stimulation index (SI) ≥ 2 was considered a positive result.

Results

Positive MAT results were obtained in 3 patients (27%) sensitized to rocuronium (SI 2.1-2.3), 4 patients (67%) sensitized to birch pollen (SI 3.1-19.42) and 4 patients (67%) sensitized to Hymenoptera venom (SI 2.4-44.3). MAT reached specificity of 100%. Positive control induced strong mast cells activation (SI 24.2-44.2).

Conclusions

MAT performance with LMW antigen (rocuronium) is low. However as a cellular assay, MAT offers opportunities to modify the test conditions to improve the sensitivity. For protein allergens, MAT may serve as a complementary or alternative diagnostic test.

Study supported by Polish National Science Center, grant No.2019/35/B/NZ5/02398 (rocuronium), JU grant UJU/PO3/NO/03.02 (methodology)

Informacja o konflikcie interesów autora/autorów: brak

Informacja, czy praca była już prezentowana na Międzynarodowym Kongresie PTA: nie