

Letters to the Editor

Skin Testing Performed in Individuals Cannot be Compared with Responses from Anaphylactic Patients

To the Editor:

Levy and Adkinson¹ have presented a useful overview of anaphylaxis occurring in patients during cardiac surgery. However, specific concerns are warranted regarding the interpretation of skin tests with neuromuscular blocking agents (NMBAs). The three studies^{2–4} cited by Levy and Adkinson¹ were performed in control patients who did not experience an immediate hypersensitivity reaction during the perioperative period. In such circumstances, skin tests only refer to histamine release induced by NMBAs and cannot predict an anaphylactic reaction following IV administration of NMBAs because both negative as well as positive predictive values of skin tests with NMBAs in the general population are not known.⁵

In contrast, skin tests performed in patients with a history of immediate hypersensitivity with a NMBA are highly reliable.⁶ In those patients, prick-tests followed by intradermal tests (but not only prick-tests) are necessary to identify the pathophysiological mechanism of the reaction, the culprit allergen (like NMBAs) and potential cross-reactive molecules (cross-reactivity being about 60%–70% among NMBAs). NMBAs followed by a negative reaction by skin testing may be reinjected.

In conclusion, the results of skin tests performed in individuals cannot and should not be compared with those performed in anaphylactic patients.

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In Response:

Dewachter et al.¹ suggest specific concerns are warranted regarding the interpretation of skin tests with neuromuscular blocking agents (NMBAs) based on my comments. They note the studies I cite in my review were performed in control patients who did not experience an immediate hypersensitivity reaction and suggest that skin tests only refer to the histamine release properties induced by NMBAs.² My comments only relate to false positive skin tests that occur with NMBAs that complicate interpretation of skin tests, but in no way invalidate the use of skin testing as a tool to evaluate patients after anaphylactic reactions assuming correct dilutions of agents are used. Dewachter is incorrect in noting positive skin tests are entirely related to histamine release because the steroidal derived agents can cause false positive cutaneous responses independent of histamine release.^{3,4} We also noted opioid mediated cutaneous responses with fentanyl and sufentanil unrelated to histamine release.⁵ False positive

skin tests are part of the problem when skin testing, and further emphasize the need to ensure appropriate dilutions. Please note that my review never suggested skin testing performed in patients with a history of immediate hypersensitivity reactions was not reliable. Unfortunately, skin testing may not identify the pathophysiological mechanism of the reaction, the culprit allergen if a false positive response occurs. Although potential crossreactivity can occur among the NMBAs due to similarities of structures, skin testing is widely used to determine the potential culprit agent responsible for the reaction. However, skin testing must be performed at appropriate dilutions to avoid a false positive responses, this was the point of a prior editorial.⁶ Finally, I am confused by the last statement of the authors suggesting the “the results of skin tests performed in individuals cannot and should not be compared with anaphylactic patients.” This seems at odds with your earlier comments.

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