XXV Conferência anual

ABRAVEQ 2025



ANAIS CIENTÍFICOS

ABRAVEQ

Intradermal testing in horses: Evaluating volumes and concentrations of insect allergen extracts and histamine

Vanessa Jegan (1), Sofia Silva Petri (1), Isabele Colla Lazzari Royes (1), Victor do Espírito Santo Cunha (2), Verônica La Cruz Bueno (1), Henrique Boll de Araujo Bastos (1), Nelson Alexandre Kretzmann Filho (1)

(1) Universidade Federal do Rio Grande do Sul (UFRGS), (2) Immunotech Laboratories

The intradermal test (IDT) is used to assess allergens involved in IgE-mediated hypersensitivity reactions in horses. Its accuracy depends on standardizing allergen extract concentrations, histamine controls, and injection volumes to reduce false-positive reactions and enhance sensitivity. This study aimed to evaluate insect allergen extracts and histamine concentrations for IDT in horses using *Culex* spp. and *Aedes aegypti* from FDA Allergenic®. Three different histamine concentrations and two injection volumes were analyzed. This study was conducted in Brazil with a total of 17 nonallergic and 6 allergic horses, which had not received medications for at least 8 weeks before. Allergic horses were selected by clinically sings and the diagnosis was based on a history of seasonal or perennial pruritus and recurrence of skin lesions, and other differential diagnosis were excluded. The animals were tested using intradermal injections of two allergenic extracts at three concentrations (1:2000, 1:4000, and 1:8000 w/v), the extracts were produced by the Brazilian company FDA Allergenic®, in Brazil. Histamine solutions (0.1, 0.05, and 0.025 mg/ml) were injected in 0.05 ml or 0.1 ml volumes into the lateral neck using 0.3 ml syringes and 27-G needles. Reactions were measured 15 minutes post-injection for wheal formation, erythema, and induration. A positive reaction was defined as a wheal size equal to or greater than the cut-off established between the positive and negative control reactions. None of the tested allergen concentrations produced irritant reactions in nonallergic horses, indicating they were below the irritant threshold. However, the exact threshold concentration could not be determined, as no false-positive reactions occurred. Histamine at 0.025 mg/ml produced smaller, well-defined wheals, optimizing the test's cut-off accuracy, while higher concentrations exaggerated reactions, potentially reducing sensitivity. Injection volume significantly influenced wheal size, with 0.1 ml inducing larger reactions that might overestimate allergic responses. In contrast, 0.05 ml provided distinct, more accurate wheals, preventing excessive reactions that could impair interpretation. In allergic horses, IDT confirmed true hypersensitivity, as reactions matched clinical signs. Four horses with insect bite hypersensitivity reacted positively to *Culex* spp. and *A. aegypti*. One allergic horse had no reactions, suggesting possible sensitivity to other allergens. Some horses exhibited co-sensitization between *Culex* spp. and *A. aegypti*, highlighting the complexity of equine allergic responses. This study refines IDT protocols in horses, showing that a histamine concentration of 0.025 mg/ml and a volume of 0.05 ml improve test accuracy by preventing overestimated wheal reactions. These results reinforce the use of IDT as a reliable tool for guiding the diagnosis of equine hypersensitivity and allergen-specific immunotherapy.

Keywords: Equine. Hypersensitivity. Allergic Reactions.
Ethics committee: Animal Ethical Use Committee No. 30716, 2017.