

Rapid Hymenoptera venom immunotherapy: comparative safety of three protocols

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Summary

We compared 284 sting-allergic patients treated with either a 4 day (group 1), 6 hr (group 2) or 210 min (group 3) rapid venom immunotherapy (RVIT) protocol using honey bee (HB) or yellow jacket (YJ) venom at cumulative doses of 527.6 µg, 226.6 µg and 101.1 µg respectively. The 4 day protocol involved four times as many injections as the 210 min protocol and twice as many as the 6 hr protocol. Desensitization was conducted in a hospital providing full emergency resuscitation facilities. In group 1, 1 × 100 µg boosters were given on days 7, 10, 15 and 45 and, in groups 2 and 3, 2 × 50 µg boosters were given on day 15 and 1 × 100 µg on day 45. The patients in the three groups were comparable with regard to clinical characteristics and immunological reactivity determined by skin tests. All patients had large local reactions. Systemic reactions (SR) occurred in 28.2% of patients in group 1, 28.6% in group 2 and 6.9% in group 3. The mean total cumulative venom dose (s.e.m.) for occurrence of SR was 123.75 (±24.2) in group 1, 183.27 (±28.5) in group 2, and 36.43 (±9.3) in group 3. HB led to more systemic reactions than YJ venom. The rate of SR decreased when the cumulative venom dose was reduced during RVIT. The median dose was 137.6 µg in group 1, 226.6 µg in group 2, and 21.1 µg in group 3. No systemic reactions were observed after the booster injections. The results of this study suggest that short RVIT protocols with low cumulative doses carry a lesser risk of SR.

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Introduction

Venom immunotherapy (VIT) is widely used throughout the world to treat most patients with Hymenoptera sting allergy [1,2]. Since the first desensitization with pure venom was carried out in 1974 [3], protocols of various durations have been devised in an effort to maximize protection, minimize side effects and optimize patient convenience [4–7]. With a slow protocol the time required to reach the maintenance dose of 100 µg generally considered as adequate is several weeks [8,9], with a semi-rush protocol it is several days [5,10–12] and with a rush protocol it is 24 hr [6,13,14]. The rush regimen has the obvious advantage of achieving rapid protection with minimum inconvenience for the patient. Studies using rush protocols [6,13,14] have suggested that they are at least as safe as slower protocols. However, these studies

were based on small groups of patients. In this paper, we compare three RVIT protocols lasting 4 days, 6 hr or 210 min in a large group of 284 sting-allergic patients.

Materials and methods

Patients

The patients in this study were referred to us between 1983 and 1989. Sting anaphylaxis included symptoms such as giant urticaria, generalized pruritus, angioneurotic oedema, laryngoedema, hypotension and shock. Patients with significant cardiopulmonary disease and patients receiving β -blocker drugs were excluded. Clinical characteristics are listed in Table 1.

In all patients venom-specific IgE were demonstrated [15] by skin tests with serial tenfold dilutions of honey bee (HB), yellow jacket (YJ) and wasp (W) venom (Dome Hollister Stier Laboratories, Paris, France), starting at a concentration of 10^{-3} µg/ml. Skin tests were considered positive if reactions occurred at a concentration of 1 µg/

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