

This man had the “red man syndrome” secondary to the vancomycin he had received for the Staph in his blood culture. It grew out non-aureus and was discontinued as an in-patient.

The following paragraph, #5 of accompanying PDF article, gives highlights of article, which is not all that long. The key factor is duration of infusion. Longer is better and less likely to produce this syndrome, which is benign, but somewhat uncomfortable for patient and unsettling for those not familiar with it. It is NOT an allergy in the traditional sense (ref 1, Levy et al., in which they re-challenged children with a previous red man syndrome reaction) but can rarely be associated with anaphylaxis (ref 2.)

The most common hypersensitivity reaction associated with vancomycin is red man syndrome. The incidence varies between 3.7 and 47% in infected patients [2]. Studies of vancomycin also show that the most severe reactions occur in patients younger than the age of 40, particularly in children [6]. Other research has found that between 30 and 90% of healthy volunteers receiving vancomycin developed red man syndrome, while only about 47% of those with infections had the reaction [10]. One explanation for these results is that an infection induces some histamine release as part of the natural immune response. Having a higher histamine level to begin with is thought to downregulate vancomycin's effect on mast cells and basophils. It occurs in 5–13% of patients, especially when the infusion is given over less than 1 hour [11]. Polk and colleagues [12] observed the reaction during a 1 hour infusion of 1 g vancomycin in nine of 11 volunteers (82%), which was associated with a rise in plasma histamine levels. No reaction occurred with a 500 mg dose. Healy and colleagues [13] noted symptoms in eight of 10 volunteers (80%) given 1 g vancomycin over 1 hour, but in only three of 10 volunteers (30%) given the same dose over 2 hours. Total histamine release was greater with the faster infusion.

References:

[1] Levy M, Koren G, Dupuis L, Read SE. Vancomycin-induced red man syndrome. *Pediatrics*. 1990 Oct;86(4):572-80.

A total of 11 cases of red man syndrome collected among 650 children who had received vancomycin in our hospital between 1986 and 1988 (estimated prevalence 1.6%) were retrospectively analyzed. These 11 children were compared with 11 age-matched children who received vancomycin in whom red man syndrome did not develop. Of the patients with red man syndrome, 73%, and of the patients with no reaction, 45.4% received vancomycin for penicillin-resistant *Staphylococcus epidermidis*-positive cultures, or because of history of penicillin allergy. No difference was observed in the dose per

kilogram given to both groups (12.9 +/- 3.5 mg/kg per dose in those with red man syndrome vs 12.3 +/- 6.9 mg/kg per dose in control children. The duration (mean +/- standard deviation) of vancomycin infusion was 45.9 +/- 16.7 minutes (range 10 to 90 minutes) in patients with red man syndrome and 54.5 +/- 7.6 minutes (range 45 to 65 minutes) in the control group (P = .07). In the 5 children with red man syndrome rechallenged with vancomycin, slower infusion rates prevented or reduced the syndrome, which emphasized the fact that the rate of administration is the important determinant of red man syndrome in susceptible cases. Clinically, the syndrome developed at the end of the infusion in most patients, but appeared as early as 15 minutes after initiation of the infusion. It was mostly manifested as a flushed, erythematous rash on the face, neck, and around the ears. Less frequently, the rash was distributed all over the body. Pruritus was usually localized to the upper trunk but was also generalized (2 of 11 children).

[2] Hassaballa H, Mallick N, Orłowski J. Vancomycin anaphylaxis in a patient with vancomycin-induced red man syndrome. *Am J Ther.* 2000 Sep;7(5):319-20.

Vancomycin is a powerful glycopeptide antibiotic that is increasingly being used owing to the emergence of highly resistant organisms such as methicillin-resistant *Staphylococcus aureus*. Although a generally safe medication, administration of vancomycin is not benign, and there have been a number of adverse reactions reported. We present the case of a patient with vancomycin-induced red man syndrome who developed vancomycin anaphylaxis. Our case illustrates that red man syndrome may be a marker for true vancomycin allergy, although it was generally not thought of as so in the past.