

THE TRANSFERENCE OF REAGINS IN BLOOD TRANSFUSIONS*

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IN THE PAST two years I have had an opportunity to study the effect of blood from allergic donors upon nonallergic recipients.

The first donor was a physician, 29 years of age, who developed hay fever for the first time about the middle of August, 1936. There were no known allergies in his family. The diagnosis was perennial allergic vasomotor rhinitis with seasonal exacerbations due to weed pollens. The patient was tested and found to be skin sensitive to house dust, chocolate, string beans, spinach, and ragweed pollen. These foods were eliminated, house dust was reduced in his living quarters, and he was hyposensitized with an extract of house dust and ragweed pollen. His perennial symptoms entirely disappeared, and he obtained satisfactory relief from his pollen hay fever.

This patient acted as the blood donor for two recipients whom I was able to study. These recipients had no history of allergic diseases themselves, nor were there any in members of their families so far as could be determined by history. Both patients had a marked secondary anemia, and the diagnosis in each was carcinoma.

Before transfusion the recipients were skin tested to all of the substances, except house dust, which gave positive reactions in the allergic donor. The skin tests of the recipients were negative to these substances. After the transfusions of 500 c.c. of whole blood from the allergic donor, the recipients were again tested to the same substances; it was found that they reacted to ragweed, string bean, and spinach. These substances which gave positive reactions by direct testing on the donor's skin also gave positive reactions with his blood by the Prausnitz-Küstner technique of passive transfer. The reactions in the recipients were maximum in four to five days and remained positive for about two weeks. After this time they were faint and difficult to interpret.

Chocolate was negative by direct test on the recipients and also negative by passive transfer.

Although the donor was clinically and skin sensitive to house dust, this antigen was not used to test the recipients because of the difficulty of distinguishing a specific from a nonspecific reaction.

Another physician who had late hay fever since the age of nine was skin sensitive to house dust, orris root, horse, and timothy and ragweed pollen. He acted as a blood donor for a recipient who had a

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carcinoma of the stomach. The recipient gave no history of personal or familial allergy. His skin tests were negative to the above allergens before the transfusion.

Fourteen hours after a transfusion of 500 c.c. of whole blood from the allergic donor to the nonallergic recipient, the recipient's skin showed slight reactions to house dust and ragweed. In four days the recipient's skin reacted as follows:

House dust	Marked
Orris root	Moderate
Horse	Moderate
Timothy	Moderate
Ragweed	Marked
Egg (control)	Negative

On the sixth day the tests were not quite as large as they were two days previously.

All of the tests on this recipient, before and after the transfusion, were done with the same syringes without refilling them.

Blood from this donor showed reagins for house dust, horse, and timothy and ragweed pollens. Orris root, on the other hand, which reacted on the recipient after the blood transfusion and on the donor by direct test, gave no reaction on passive transfer with the donor's blood.

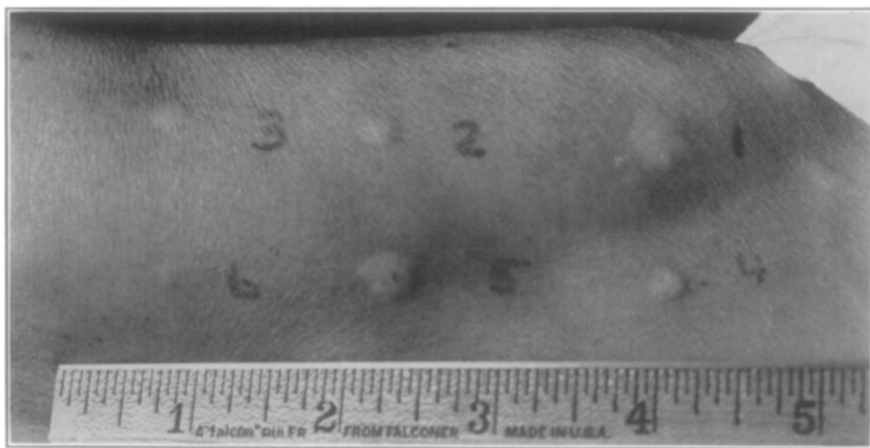


Fig. 1.—Tests obtained in the third nonallergic recipient six days after blood transfusion from an allergic donor. 1, House dust; 2, orris root (0.01 mg. N); 3, horse dander (0.001 mg. N); 4, timothy (0.01 mg. N); 5, ragweed (0.01 mg. N); 6, egg (control).

DISCUSSION

It has been demonstrated in these 3 cases that it is possible passively to sensitize the skin of a nonallergic recipient by means of a transfusion of 500 c.c. of whole blood from an allergic donor. No attempt was made in any of these cases to demonstrate a clinical sensitivity.

Ramirez¹ reported one case of passive sensitization. The recipient had primary anemia and received 800 c.c. of blood from a horse dandruff-sensitive individual. Two weeks later the recipient developed asthma when exposed to horse dandruff. The recipient's skin was not tested before the transfusion and there was no mention made of the skin test after depletion of the passive sensitization. In other words, it is not clear whether or not this was a true passive sensitization.

Mills and Schiff² reported the case of a hemophiliac who developed a "typical protein reaction" at the site of a test to horse serum thirty minutes after he had received 800 c.c. of blood from a known horse-sensitive individual. The skin test to horse serum before the transfusion was negative. This instance is not as clear-cut as those reported here because the patient had been given 4.0 c.c. of horse serum subcutaneously eight days previous to the transfusion.

REFERENCES

1. Ramirez, M. A.: Horse Asthma Following Blood Transfusion, *J. A. M. A.* **73**: 984, 1919.
2. Mills, C. A., and Schiff, Leon: Passive Anaphylaxis in a Hemophiliac, *Am. J. M. Sc.* **171**: 854, 1926.