

the tail continues to twitch, and the hind legs display feeble clonic movements which appear and reappear like echos of the preceding stages. If the cat is examined during this time, it is found that the pupils are widely dilated, and that the pulse and respiration are increased in rate. The convulsion has rarely been evoked twice within a single day. Several weeks may elapse during which it is not obtained at all.

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Prophylactic Value of Refined Antipertussis Rabbit Serum.*

WILLIAM L. BRADFORD, HENRY W. SCHERP AND ANN M. BROOKS.

From the Departments of Pediatrics and Bacteriology, University of Rochester School of Medicine and Dentistry, Rochester, N. Y.

The globulin fraction of the serum of rabbits, immunized with living *Hemophilus pertussis*, was shown to protect mice against experimental infection with this organism.¹ The intramuscular injection of doses of from 4 to 7 ml of the refined serum into infants, in the early stage of whooping cough, produced an immediate increase in both the mouse-protective and agglutinative titers of the infants' sera.² In certain instances, there seemed to be a beneficial effect upon the clinical course of the disease, and frequently a definite decrease was noted in the total number of mononuclear cells of the blood.

The present report concerns the prophylactic use of the antiserum[†] in 20 infants exposed to pertussis by family contact.

When an older sibling was found to have whooping cough, the exposed infant was given an intramuscular injection of from 2 to 10 ml of the concentrated antiserum (after preliminary testing for sensitivity). The exposed infant then remained at home in contact with one or more infected siblings, and was observed carefully by clinical examination. In 13 cases the presence of pertussis in the family was confirmed by nasopharyngeal culture.

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¹ Scherp, H. W., Bradford, W. L., and Wold, M., *Proc. Soc. Exp. Biol. and Med.*, 1939, **43**, 172.

² Bradford, W. L., Scherp, H. W., and Brooks, A. M., *Am. J. Dis. Ch.*, 1941, **62**, 492.

[†] The concentrated antiserum was supplied through the courtesy of Dr. W. E. Bunney of E. R. Squibb & Sons. The methods of preparation and standardization have been briefly described.²

In the group of 20 infants 13 (65%) were completely protected. Of the 7 infants who developed pertussis after receiving the serum, however, 5 experienced mild cases, whereas the disease was unmitigated in the other two. Furthermore, in 3 of these 7 instances, the infants began to cough 5, 5, and 4½ weeks respectively after the serum was injected (the time of onset was not ascertained in 3 cases). It is unlikely that a passive immunity would be at an adequate level after this interval, especially in the presence of a continuing exposure to infection.³ In no case were there complications. No general reactions occurred as a result of receiving the serum, although 2 infants did develop urticaria at the site of the injection.

It is impossible to know whether a given infant in this series would have escaped infection without the serum, but it is generally agreed that the communicability rate is between 70 and 100% under the ordinary conditions of family exposure.⁴ During a recent study⁵ of a school outbreak in Rochester, 31 of 36 (86%) preschool children exposed in families developed the disease. If the rate were 80%, the expected number of "escapes" in the present series would have been 4 (20%). Actually, 13 (65%) escaped infection. The difference (45%) is 3.2 times its standard error (14%) and therefore is statistically significant.

Auxiliary tests of the serum used in the present study indicate that its action is chiefly antibacterial rather than antitoxic. The relative importance of the antitoxic and antibacterial qualities of immune pertussal serum is not as yet entirely known, but recent work⁶ suggests that antibacterial antibodies are more closely related to resistance. If this be true, it would seem that a more extended test of the value of an antiserum, such as the one discussed here, deserved attention.

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³ Topley, W. W. C., and Wilson, G. S., *The Principles of Bacteriology and Immunity*, Second Edition, William Wood & Company, Baltimore, 1936, p. 882.

⁴ a. Von Sholly, A. I., Blum, J., and Smith, L., *J. A. M. A.*, 1917, **68**, 1451; b. Kendrick, P., and Eldering, G., *Am. J. Hyg.*, 1939, **29**, 133; c. Cullotta, C. E., Dominick, D., and Hanson, E. R., *Yale J. Biol. and Med.*, 1938, **10**, 473; d. Doull, J. A., Shibley, G. S., Haskins, G. E., Bancroft, H., McClelland, J. E., and Hoebischer, H., *Am. J. Dis. Ch.*, 1939, **58**, 691; e. Miller, J. J., and Faber, H. K., *Am. J. Dis. Ch.*, 1940, **60**, 1172.

⁵ Clark, A. J., and Bradford, W. L., to be published.

⁶ Florsdorf, E. W., McGuinness, A. C., Kimball, A. C., and Armstrong, J. G., *J. Ped.*, 1941, **19**, 638.