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U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

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EVALUATION OF A MOUSE TEST FOR THE STANDARDIZATION OF THE IMMUNIZING POWER OF ANTI-RABIES VACCINES¹

By KARL HABEL, *Assistant Surgeon, United States Public Health Service*

The ideal animal test for the standardization of any vaccine should be done under conditions either similar to or at least comparable to those under which the vaccine is used clinically in human beings. The technique of performing the test should be simple and there should be no procedure in which individual differences of the technician might cause variation in results. The time required to complete a test is of practical importance since the material being tested cannot be released for clinical use until successfully meeting the requirements. Therefore the duration of the test should be sufficiently short so as not to subtract materially from the life of the vaccine. The test should be unequivocal and subject to but one interpretation. On repetition of identical tests the results should be uniform. The test animals used should be easily available, inexpensive, and easily cared for in the laboratory. The material used in testing the immunizing power should be of a standard quality and its potency, or the test must be so arranged that any changes in these properties will be revealed in the results. These are the requirements of the ideal test.

Since rabies vaccine was first used it has been subjected to many types of experimental tests to determine its immunizing properties and, therefore, its efficacy in the Pasteur treatment of human beings. This subject has been reviewed recently by Webster (1), who emphasizes the general lack of positive results in the light of statistical analysis of the published protocols.

In general, the following types of tests have been used.

1. *Injection of rabies virus into central nervous system (subdural, intracerebral, intraocular) followed by a course of vaccine treatment (1).*— In this method results have been quite consistently negative, the same mortality usually occurring among the vaccinated and control animals. This is easily understandable, since the direct introduction

¹ From the Division of Biologics Control, National Institute of Health.

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Dr. Karl Habel in this classic mouse protection test establishes for an efficient rabies vaccine the minimum requirement of protection against at least 1,000 MLD (minimum lethal dose).

Echoes

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