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The first human vaccine against the avian influenza virus H5N1

Andrei-Dumitru MARGULESCU, MD

University Hospital of Bucharest, Cardiology and Internal Medicine Department and „Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

The appearance of the avian influenza virus H5N1 in East Asia in the late 1990 became one of the great dangers for human health in the last century. This virus has been shown to cross the inter barrier species, between birds and humans, and to be able to cause severe lung injuries and death in humans. About 200 cases of human avian influenza with H5N1 have been reported, and the mortality rate of this disease in humans is 57%. Since the virus has spread worldwide, the threat of a new influenza pandemic is ever present.

In this context, the development of an efficient human vaccine against H5N1 is imperative. This recently published study evaluated the efficacy of a human vaccine against this virus, on 451 healthy voluntaries, aged between 18 and 64 years. These voluntaries were randomized in 5 groups in a 2:2:2:2:1 fashion. Two doses of vaccine were administered. The first 4 groups received active vaccination in 4 different doses of vaccine prepared from a subvirion influenza A (H5N1) variant. The last group received placebo. The 4 different doses were 7.5mcg, 15 mcg, 45 mcg, and 90 mcg. The voluntaries were followed for 56 days, and the level of protective antibodies was evaluated after 28 days from the last vaccination. Immediately after the first vaccination a serum sample was taken to serve as witness.

The maximal level of protective neutralizing, hemaglutinine inhibiting antibodies was achieved in the group that received the highest dose (90mcg). Thus, 54% of these voluntaries developed protective antibodies levels (of over 1:40), as compared with 43%, 22% and 9% respectively, in the other active treatment groups. No protective antibodies were noted in the placebo group. Minor adverse reactions were noted in the active groups, most often confined to the site of injection.

In conclusion, the human vaccine against H5N1, administered in two consecutive doses of 90 mcg, determines protective neutralizing antibody levels, typically associated with protective therapeutic response against the avian influenza virus.

Safety and Immunogenicity of an Inactivated Subvirion Influenza A (H5N1) Vaccine
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