Development of respiratory syncytial virus vaccines

"*In the past decade tremendous progress has been made in the development of RSV* [respiratory syncytial virus] *vaccines*", according to Drs Fernando Polack and Ruth Karron from The Johns Hopkins University, Baltimore, US.

While RSV has been recognised as an important respiratory pathogen for over 40 years, there is still no available vaccine due to a number of inherent problems in RSV-vaccine development. Furthermore, to immunise all individuals who would benefit from vaccination, more than one vaccine type will probably be needed because serious RSV disease can occur in both high-risk RSV-experienced individuals and RSV-naive infants. Nonreplicating vaccines may be useful in elderly individuals and high-risk older children, as well as for maternal immunisation, while RSV-naive infants will probably require live virus vaccines, according to Drs Polack and Karron. A combination of both of the vaccine types may be useful in certain populations such as elderly individuals.

Current RSV-vaccine development has been profoundly affected by the enhanced disease observed in infants who received formalin-inactivated RSV vaccine in the 1960s, comment Drs Polack and Karron. Key features of an RSV vaccine for seronegative infants have been suggested by clinical experience with formalin-inactivated RSV vaccine and information from animal models of disease enhancement. These characteristics are most likely to be exhibited by a live attenuated vaccine but novel immunisation strategies combining nonreplicating vaccines with cytokines or new adjuvants may achieve the same effects.

Drs Polack and Karron say that recombinant technology should enable further refinement of existing live attenuated vaccine candidates resulting in vaccines that are sufficiently attenuated, immunogenic and phenotypically stable.

Polack FP, et al. The future of respiratory syncytial virus vaccine development. Pediatric Infectious Disease Journal 23 (Suppl.): 65-73, No. 1, Jan 2004

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