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Poster presentation

P14-10. Comparable immunogenicity of VRC DNA and rAd5 HIV-1 vaccines delivered by intramuscular, subcutaneous and intradermal routes in healthy adults (VRC 011)

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Background

DNA and rAd5 vaccines delivered intramuscularly have been studied in many phase I/II trials. Here, the immunogenicity of the NIAID Vaccine Research Center (VRC) DNA and rAd5 HIV-1 vaccines were evaluated after injection by intramuscular (IM), subcutaneous (SC) and intradermal (ID) routes of administration.

Methods

60 subjects were randomized to one of two schedules. Group 1 received 3 DNA vaccine injections followed by a recombinant adenoviral vector (rAd5) vaccine booster; Group 2 received rAd5 prime followed by rAd5 booster. Within each Group subjects were equally randomized to prime injections by the IM, SC or ID routes of administration and all groups received a boost with rAd5 by IM injection. Half of the subjects in each group had pre-existing Ad5 neutralizing antibody.

Results

All routes induced T cell and humoral immune responses in Ad5 naïve and pre-immune subjects. >95% of subjects made an antibody response to Env. T cell responses to Env were seen in >80% and T cell responses to Gag were seen in >50% of all study subjects. Env T cell responses were of greater magnitude than responses to Gag. The frequency and magnitude of T cell responses were not diminished in Ad5 pre-immune subjects as compared to naïve subjects in either of the ID primed groups.

Conclusion

In this exploratory study, SC delivery of DNA or rAd5 as a prime does not induce a higher frequency or magnitude of T cell immunity than IM delivery. ID delivery may provide a dose sparing effect and also deserves additional evaluation as a means to overcome pre-existing vector immunity.