DOSE SPARING INTRADERMAL TRIVALENT INFLUENZA (2010/2011) VACCINATION OVERCOME REDUCED IMMUNOGENICITY OF THE 2009 H1N1 STRAIN*

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BACKGROUND: We hypothesised that low-dose intradermal (ID) vaccination of the trivalent influenza vaccine (TIV) delivered by the MicronJet600TM (NanoPass Technologies, Israel) would be non-inferior to the full-dose intramuscular (IM) and mid-dose IntanzaR vaccination in the elderly and the chronically ill adults.

METHODS: We performed a prospective randomised trial on elderly and chronically ill adults. Subjects were randomly assigned into four groups. Groups ID3 and ID9 received reduced dose ID TIV (3 μg and 9 μg of haemagglutinin per strain respectively) delivered by MicronJet600TM (NanoPass Technologies, Israel). Group INT9 received reduced-dose ID TIV (9 μg) delivered by Becton Dickinson's Soluvia^{TM} device (IntanzaR9, Sanofi-Pasteur, France). Control group IM15 received a full-dose IM TIV (15 μg). We measured antibody titres by haemagglutination inhibition (HAI) and microneutralisation (MN) assays at baseline and day 21.

RESULTS: Baseline characteristics for all groups were similar (group and sample sizes: ID3=63; ID9=68; INT9=65; IM15=66). At day 21 post-vaccination, the GMT ratio and the seroconversion rates difference for all three strains of the ID vaccine groups were non-inferior to the IM vaccine group. The seroconversion rate, seroprotection rate, and the GMT of the H1N1 strains by HAI and MN assays were significantly higher in the ID groups compared with the full-dose IM vaccine group. The seroconversion rates of the H3N2 strain by HAI assay were also significantly higher in the ID groups when compared with the full-dose IM group. Direct comparison among the three ID devices showed no significant differences. No serious adverse events related to vaccination were reported.

CONCLUSION: Dose-sparing ID TIV can overcome reduced immunogenicity of the H1N1 strain, and according to some measures, for the H3N2 strain. At-risk subjects indicated for the TIV should be considered for intradermal immunisation to compensate for reduced immunogenicity.

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