Briefing document

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Japanese Encephalitis Vaccination via the IntraDermal route (JEVID)
Preliminary Results of a Clinical Trial

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Key statement

A collaborative clinical trial (ACTRN12621000024842) is being conducted by The University of Queensland, QIMR Berghofer and a Brisbane travel medicine clinic (Dr Deb the Travel Doctor) to investigate the immunogenicity of intradermal (ID) administration of the Japanese Encephalitis (JE) vaccine (Imojev®). The study uses fractional dosing (0.1mL) via the ID route, instead of the standard dose of 0.5mL via subcutaneous (SC) or intramuscular (IM) administration.

Preliminary results show that intradermal JE vaccination with a reduced dose is highly immunogenic, and is a cheap, pragmatic alternative to standard practice during periods of vaccine shortage. The lower cost will make mass vaccination programs more affordable and allow vaccine supplies to protect four times more people.

Methods

Healthy young adult volunteers from the travel clinic were administered 0.1mL ID Imojev (i.e., one fifth of the standard SC dose). Blood samples were collected at baseline, and at 4 and 8 weeks after vaccination and serological testing conducted at QIMR Berghofer. Seroconversion was defined by a "gold-standard" 50% plaque reduction neutralisation test ($PRNT_{50}$). A 4-fold increase in antibody titre demonstrates seroconversion and immunity. The JE isolate used in these tests was the JEV-FU strain isolated during the 1995 outbreak in the Torres Strait.

Preliminary results

To date we have results for 3 male and 8 female volunteers (n = 11), aged 20-44 years. All were seronegative at baseline. After one dose of 0.1mL ID Imojev vaccine, all had ≥ 4-fold increases in antibody titres 4 weeks after vaccination. At 8 weeks after vaccination, antibody titres were 4-fold (n = 3), 16-fold (n = 7) or 64-fold (n = 1) greater than baseline. No serious adverse events were reported.

Conclusions

Our preliminary results show that intradermal JE vaccination with 0.1mL ID Imojev® is an effective, low-cost alternative to SC or IM vaccine administration in healthy young adults.

Our results reflect similar findings for intradermal administration of other vaccines. Low dose, ID administration was used in Brazil when supplies of Yellow Fever vaccine were insufficient to meet the demands of an outbreak response. Pre- and post-exposure rabies vaccination using the ID route is endorsed by the World Health Organization and implemented worldwide. Multiple studies on ID rabies vaccination have been conducted at our travel clinic, and cited by WHO and other international guidelines.

Ongoing work

The clinical trial has not yet been completed as we are seeking to enrol 50 volunteers, but given the current outbreak in Australia we wanted to share our preliminary findings.

For more information on how to participate in the trial, visit www.thetraveldoctor.com.au/jevid/

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