

CISTM17 – 350 words (2500 characters)

Abstract topic: Vaccines

Title: Efficacy of one-dose intramuscular rabies vaccine as pre-exposure prophylaxis in travellers

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Background: Travellers to endemic areas are at risk of rabies infection if bitten or scratched by mammals. WHO guidelines for pre-exposure prophylaxis (PrEP) recommends multiple vaccine doses; however, travellers often present for travel medicine advice with insufficient time to complete standard PrEP schedules.

Objective: To investigate the efficacy of one-dose intramuscular (IM) rabies vaccine as PrEP by measuring antibody response to simulated post-exposure prophylaxis (PEP) using two IM doses of rabies vaccine in subjects aged <50 and ≥50 years.

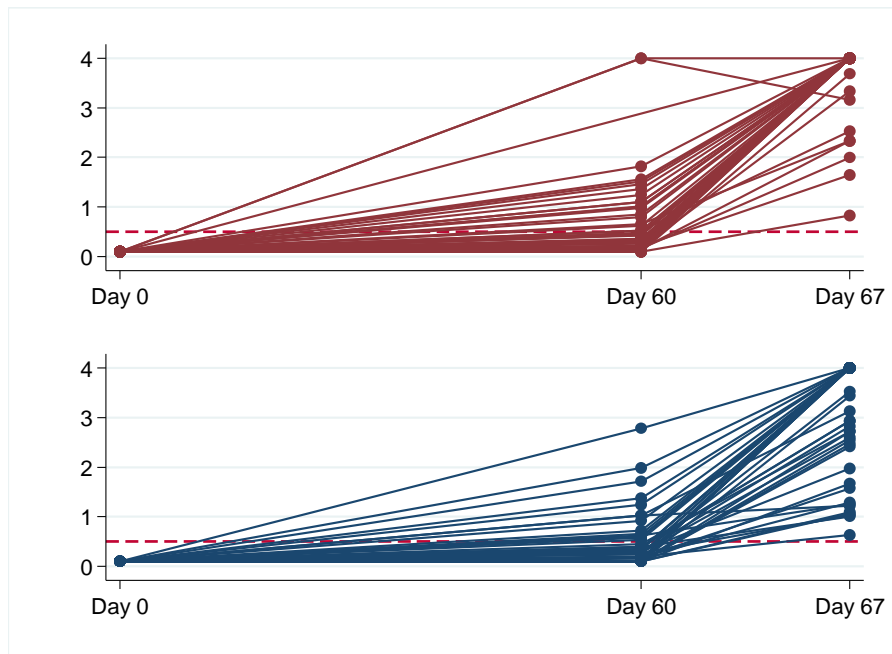
Methods: A quasi-experimental pre-post intervention study was conducted at a specialised travel clinic in Brisbane between January and December 2020. Adults (≥18 years) without history of rabies vaccination were included. On Day 0, serology testing for antibodies was done to confirm that participants were seronegative, and one dose of 0.5 mL IM Vero cell rabies vaccine (Verorab®, Sanofi Pasteur Ltd.) was administered. Participants returned on Day 60 for repeat serology testing, and the first simulated PEP dose; Day 63 for the second simulated PEP dose; and Day 67 for post-PEP serology.

Results: 94 participants were included in the study (n=50 <50 years; n=44 ≥50 years), none of whom had detectable antibodies on Day 0. On Day 60 (after one-dose IM), 38.0% and 31.8% of participants aged <50 and ≥50 years were antibody-positive (≥0.5 IU/mL), respectively. On

Day 67 (after two doses of simulated PEP), all participants were antibody-positive. Titre levels in ≥ 50 age group were significantly lower (p-value =0.002). Among participants aged <50 years, 10%, 8%, and 82% had antibody titre levels of 0.5-2.49 IU/mL, 2.5-4.0 IU/mL, and >4 IU/mL, respectively; whereas, in participants aged ≥ 50 years, 29.6%, 22.7%, and 47.7% reached titre levels of 0.5-2.49 IU/mL, 2.5-4.0 IU/mL, and >4.0 IU/mL, respectively (Figure).

Conclusions: One dose of IM rabies vaccine was found to be effective in priming the immune system in young and older individuals, resulting in rapid development of antibodies after two IM doses of PEP. When there is insufficient time to complete one of the standard recommended PrEP schedules, one IM dose should be considered as an alternative PrEP schedule.

A



B

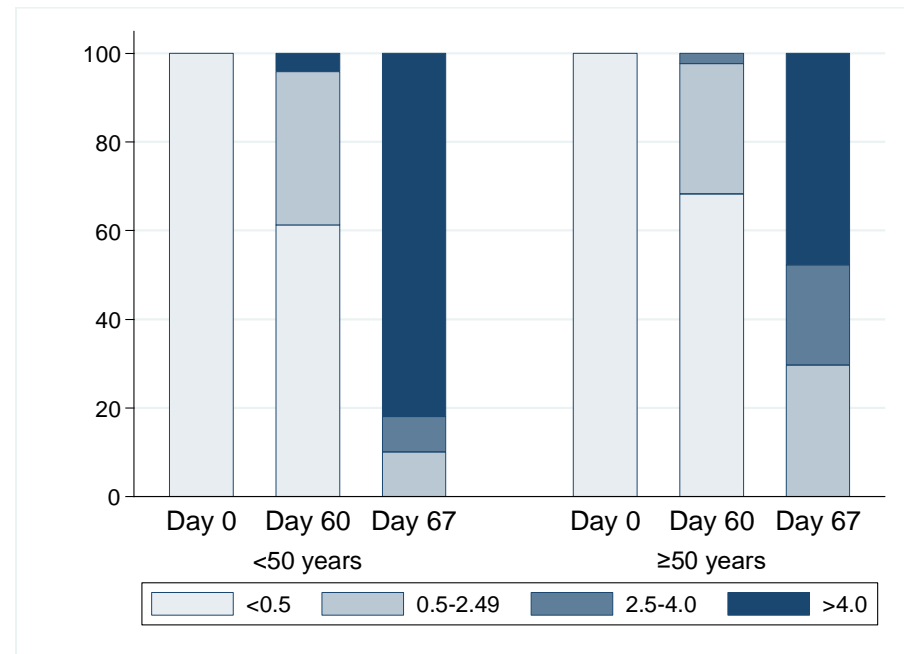


Figure. A) Trajectory of rabies titre levels by age groups (<50 years [red] and ≥ 50 years [blue]); and B) proportion of participants with titre levels of <0.5, 0.5-2.49, 2.5-4.0, >4.0 IU/mL by age groups over time.