Background

Chikungunya (CHIKV) has emerged in the Caribbean and Central and South America, infecting more than one million people since 2013 and posing risk to travelers. We describe traveler demographics, personal protective measure (PPM) use, mosquito exposure, and CHIKV acquisition in a military-medical-system cohort.

Methods

TRAVI is a prospective observational study enrolling subjects presenting to 5 military travel clinics. We analyzed surveys and paired sera from travelers to this region between December 2013 and May 2015. CHIKV acquisition was determined by enzyme-linked immunosorbent assay, plaque reduction neutralization test, and polymerase chain reaction.

Results

277 travelers enrolled (51% male, median age 40 years, 43% active duty (AD)), including 10 who enrolled post-travel. The median trip duration was 11 days. 41% traveled to Mexico/Central America, 31% to South America, and 28% to the Caribbean. 51% traveled on vacation, 29% for missionary work, and 29% for a military purpose. 10% were visiting friends/relatives (VFR); 48% of travelers reported using N,N-diethyl-m-toluamide (DEET) often, 28.5% rarely, and 23.5% never; 11% used permethrin. 64% of travelers reported seeing mosquitoes; 47% reported no mosquito bites, while 3% reported ≥15 bites.

In a multivariate logistic regression model, AD status (OR 0.98 [0.95-1.0]), whereas less mosquito bites (OR 0.98 [0.95-1.0]), whereas DEET use (OR 3.3 [2.2-5.0]) were associated with CHIKV acquisition.

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Conclusions

Mosquito exposure is common in travelers to CHIKV-outbreak regions in the Americas; AD, younger travelers, and those who are VFR may be at higher exposure risk. Self-reported PPM use is suboptimal even after pre-travel counseling. Serologic evidence of CHIKV infection was seen in both symptomatic and asymptomatic travelers, the majority of whom were in higher exposure-risk groups. Pre-travel counseling should target these higher risk groups.

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