Effectiveness of the WC/rBS oral cholera vaccine in the prevention of traveler's diarrhea

ABSTRACT

Objective: Traveler’s diarrhea (TD) is the most frequent disease among people from industrialized countries who travel to less developed ones, especially sub-Saharan Africa, Southern Asia and South America. The most common bacteria causing TD is enterotoxigenic Escherichia coli (ETEC). The WC/rBS cholera vaccine (Dukoral®) has been shown to induce cross-protection against ETEC by means of the B subunit of the cholera toxin. The aim of the study was to evaluate the effectiveness of the WC/rBS cholera vaccine in preventing TD.

Methods: Between May 1 and September 30 (2007), people seeking pre-travel advice in ten Spanish international vaccination centers were included in a prospective cohort study of travelers to cholera risk countries. The incidence rates of TD were adjusted for variables whose frequencies were statistically different (entry point 0.10) between the vaccinated and non-vaccinated cohorts.

Findings: The vaccinated cohort (n = 544 travelers) included people vaccinated with the WC/rBS cholera vaccine, and the non-vaccinated cohort (n = 530 travelers) by people not vaccinated. The cumulative incidence rate of TD was 1.69 in vaccinated and 2.14 in non-vaccinated subjects. The adjusted relative risk of TD in vaccinated travelers was 0.72 (95% CI: 0.58–0.88) and the adjusted vaccination effectiveness was 28% (95% CI: 12–42).

Conclusions: The WC/rBS cholera vaccine prevents TD in 2 out of 7 travelers (preventive fraction: 28%). The number needed to vaccinate (NNV) to prevent 1 case of TD is 10.