

The use of doxycycline to prevent cholera

Francesco Grandesso, Epicentre, Paris

Background

In the ongoing cholera epidemic that began in Kenya in early 2015, national health authorities promoted the use of single-dose doxycycline as a preventive measure for all household members of cholera cases. In Nairobi, where more than 3000 cases were reported, doxycycline was not distributed uniformly to all households. We took advantage of this context to assess the association between single-dose doxycycline and the risk of developing diarrhoea among household members of cholera cases.

Methods

A cohort study was conducted retrospectively among households in which at least one laboratory confirmed cholera case was notified. Household members present for at least one day during the index cholera case illness were interviewed to assess whether they took doxycycline and whether they had diarrhoea in the following 11 days. Risk ratios (RR) were estimated using binomial logistic regression. Age, sex, place of residence, food habits, source of drinking water, hygiene habits, and socio-economic status were assessed as potential confounders in a multivariate analysis.

Results

A total of 403 household contacts reported having taken doxycycline; 471 had not. Nine contacts in the doxycycline group and 27 in the non-doxycycline group reported having had diarrhoea (RR 0.40, 95% CI 0.19 – 0.84), 7 and 12 sought for medical care (RR 0.70, 95% CI 0.29 – 1.76) and one

and 4 had diarrhoea requiring intravenous rehydration (RR 0.29, 95% CI 0.03 – 2.59), respectively. After adjusting for the number of days spent with the index case and the use of soap for handwashing, the risk ratio was 0.32 (95% CI 0.13 – 0.71) for diarrhoea, 0.54 (95% CI 0.17 – 1.52) for diarrhoea requiring medical care and 0.28 (95% CI 0.01 – 1.88) for diarrhoea requiring intravenous rehydration.

Conclusion

Single-dose doxycycline was associated with a lower risk of developing diarrhoea immediately following the notification of the first case in a household. The somewhat attenuated risk reduction for diarrhoea requiring medical care might be explained by the fact that household members who received doxycycline were encouraged to seek care immediately if they had diarrhoea.

Since the participants were interviewed retrospectively, we were not able to confirm whether the diarrhoeal episodes of household contacts were actually cholera. Although diarrhoeal episodes requiring intravenous rehydration may be more specifically associated with cholera, the low number of cases reported did not allow us to draw a solid conclusion. This study, nevertheless, encourages continuing research on this preventive approach.

The use of a single dose of doxycycline may be effective in preventing cholera and other diarrhoeal diseases among household members of cholera case.