**Practice Points**

Chemoprophylaxis with doxycycline in suspected epidemic of leptospirosis during floods: does this really work?

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South Gujarat had been witnessing outbreaks of leptospirosis every year, from its first identification in year 1997. Several preventive measures such as avoidance of direct and indirect contact with animal urine, rodent control activities in pre monsoon months are recommended every year, to reduce the incidence of disease in affected areas. One of the important measures, implemented, along with these methods is chemoprophylaxis with doxycycline in high risk areas. As per guidelines received from NICD¹, during the peak transmission season, doxycycline 200 mg, once a week, may be given to persons (e.g. paddy field workers, canal cleaning workers in endemic areas) in those areas from where clustering of cases has been reported, which can be extended maximally to a period of six months.

Though chemoprophylaxis is the primary approach to prevent leptospirosis among people who have a strong likelihood of exposure, either occupational or through water-related athletic events, only a few studies²-⁴ have so far been taken to show its effectiveness in people exposed to situations like natural disasters such as flood. In a study by Takafuji ET et al (1984)², US army soldiers who participated in a 3-week training exercise in the jungles of Panama, doxycycline, 200 mg once weekly, was found to reduce the attack rate of clinical leptospirosis from 4.2% to 0.2%, for a preventive efficacy of 95%. A similar study by Sehgal SC et al (2000)³, reported that in residents of a rural area of the Andaman Islands, an area of high endemicity with annual outbreaks of leptospirosis associated with flooding, administration of doxycycline, 200 mg once weekly, was found to reduce the rate of symptomatic leptospirosis from 6.8% to 3.1%, for a preventive efficacy of 54%; however, such therapy did not reduce the rate of infection. Contrary to these findings, Brett-Major DM et al⁵ conducted a systematic review of clinical research on antibiotic prophylaxis in leptospirosis, and found that regular use of weekly oral doxycycline 200 mg increases the odds for nausea and vomiting with unclear benefit in reducing Leptospira sero conversion or clinical consequences of infection.

With the objective of exploring the effectiveness of doxycycline as chemoprophylaxis measure at the time of flood, which Surat witnessed in August 2006, a population-based case control study⁶ was conducted where people exposed to flood water were advised by the health authorities to take chemoprophylaxis, as cap doxycycline-200 mg weekly.

Sixty two, laboratory confirmed Cases of 129 Suspected Cases and 253 age & sex matched fever & healthy Controls were interviewed with the help of predesigned questionnaire. The association of risk factors with acquiring leptospirosis was assessed by Adjusted OR with the help of Logistic regression model to control confounders. Out of 62 Cases, 26 (42%) took chemoprophylaxis as advised. Out of 253 Controls, 159 (63%) were found taken doxycycline. The association was found to be protective (OR= 0.43, 95% C.I. =0.23-0.78) while using univariate analysis. When other factors like Walking barefoot, Contact of injured part with flood water, Use of flood water for various activities, presence of trash with in 500m & presence of rats in surroundings, were adjusted, the association between Chemoprophylaxis and leptospirosis was

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not found to be protective (Adj OR=0.77, 95% C.I=0.35-1.69).
Given the large numbers of flood-related cases of leptospirosis in South Gujarat, there is an urgent need for larger, controlled trials of this simple approach to prevention.
Limitation of the study: In the study, ELISA test instead of MAT is used as the confirmatory test for defining cases

References