Abstract

Typhoid and paratyphoid fever continue to be important causes of illness and death, particularly among children and adolescents in developing countries where enteric fever is associated with poor sanitation and unsafe food and water. Quantification of disease burden is crucial for policy making about the deployment of enteric fever prevention measures and vaccines. This cross-sectional study was undertaken to determine the epidemiology and antimicrobial resistance pattern in bacterial aetiologies of enteric fever among patients attending Garissa County Referral Hospital, (GCRH) located in a semi-arid region of North Eastern Kenya. Blood and stool samples were obtained from 379 consenting patients and a detailed sociodemographic questionnaire was administered. Isolation and identification of *Salmonella* Typhi, *S.* Paratyphi A and *S.* Paratyphi B were obtained by convectional culture, PCR and Vitek-2 compact detection method. Antimicrobial susceptibility testing was done using Kirby-Bauer's disc diffusion method. Multidrug resistance was defined as co-resistance to ampicillin, chloramphenicol and co- trimoxazole. Eight of the 379 (2.1%) participants were positive for *Salmonella* spp. Of the 8 *Salmonella* isolates were *S.* Typhi (n=2; 25%), *S.* Paratyphi A (n=2; 25%) and *S.* Paratyphi B (n=4; 50%). Resistance to ampicillin, tetracycline, gentamycin, chloramphenicol, nalidixic acid and trimethoprim-sulfamethoxazole was 100%, 87.5%, 75%, 50%, 25% and 25% respectively. No isolate showed resistance to ciprofloxacin. Half of all *S. typhi, S. paratyphi A* and B were multidrug-resistant. Risk factors including water and food (such as often eating outside homestead, family eating from a common plate, taking locally prepared cold drinks, family wash hands in common basin), low socio-economic status and availability of a previous laboratory confirmation of typhoid fever were associated with *S.* Typhi and *S.* Paratyphi infection. The isolation of a large proportion of MDR *S.* Typhi, *S.* Paratyphi *A* and B is worrying. Although these isolates were susceptible to fluoroquinolones, there is need for routine surveillance to monitor susceptibility to the initial first line antibiotics in clinical settings since the MDR strains have lately shown increased resistance. Addressing issues of contaminated food, water, sanitation and hygiene and low socio-economic status is likely to prevent and reduce the burden on enteric fever in this region.