

Non-typhi salmonella in children with severe malaria

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Abstract:

OBJECTIVE: To determine the association between *Plasmodium falciparum* malaria and non-typhi *Salmonella* in children. **DESIGN:** Cross-sectional hospital based study. **SETTING:** Kilifi District Hospital (KDH) between January 1997 and June 2001. **SUBJECTS:** Children aged between three months to 123 months (mean age 28.28 months) and who had been admitted to the paediatric or High Dependency Research Ward (HDRW) of the KDH. **METHODS:** A total of 19,118 blood cultures routinely obtained for all admissions and 1,820 clinically indicated stools samples were obtained from 9,147 children admitted with malaria. The specimens were cultured and antibiotic sensitivity done using standard laboratory procedures with stringent internal and external quality control in place. **RESULTS:** The total bacterial pathogens isolated from blood and stool were 1,395/19,118 (7.3%) and 342/1,820 (19%) respectively. Non-typhi salmonella consisted of 260/1,395 (18.6%) of the positive blood cultures and 92/324 (28.4%) of the stool cultures out of which a total of 101 NTS occurred in children with severe malaria. Out of the 9,147 malaria cases admitted, 101/9,147 (1.10%) had concomitant NTS infection. NTS with severe malaria as a proportion of all malaria admissions for the period varied between 0.8% and 1.5%. There was a significant association (p -value=0.032) between clinical outcome of death and female sex of the patient. The NTS isolates which occurred with severe malaria showed various levels of antibiotic resistance. They were resistant to ampicillin (35%), chloramphenicol (18%), gentamicin (22%), cefuroxime (29%), sulphamethoxazole-trimethoprim (39%), ciprofloxacin (3%), cefotaxime (14%), amoxicillin-clavulanic acid (26%) and tobramycin (18.0%). Multidrug resistance (MDR) was seen in 34 (33.6%) of the isolates. **CONCLUSIONS:** NTS and severe malaria occurring together are a problem in this area and that a large number of the isolates are MDR. An elaborate case-controlled study is required to elucidate the chain of events of both NTS and malaria parasite co-existence