

Multi-drug Resistance Profile of *Salmonella* Typhi Causing Bacteremia in Rural Ghana

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Background

S. Typhi remains a big problem in West and Sub-Saharan Africa. The lack of incidence studies has made it difficult to monitor the progress of the disease and resistance pattern of the organism. The emergence of multi-drug resistant (MDR) strains of *S. Typhi* has increased treatment cost greatly, making it difficult for less developed countries like Ghana to afford, and as such likelihood of increasing mortality rate as a result of multi-drug resistant *S. Typhi*-causing bacteremia.

Methods

This is a cross-sectional study in newly recruited cases of patients attending the Agogo Government Hospital in Asante-Akyem North District, Ghana, between 1 May, 2016, and 1 November, 2016. Patients arriving at the hospital with symptoms of Salmonellosis were recruited if consented to participate in the study. Venous blood were collected and inoculated directly into a blood culture vial. Biochemical (using API 20E) and Serological investigations were performed on suspected isolates. Susceptibility to Ampicillin, Amoxiclav, Ceftriaxone, Trimethoprim/Sulfamethoxazole, Ciprofloxacin, Gentamicin, Tetracycline, Chloramphenicol, Ceftazidime, Cefotaxime and Nalidixic acid was tested on Mueller Hinton Agar using the KirbyBauer disc diffusion method. Isolates resistant to Ampicillin, Chloramphenicol and Trimethoprim/Sulfamethoxazole were considered MDR.

Results

Of the total number of 400 blood culture samples received, 14 (3.5%) *Salmonella* Typhi were isolated, of which 9 (64.3%) and 5 (35.7%) were males and females respectively. 6 (42.9%) of the isolated serovar Typhi were MDR. This was higher in males than in females. The mean age of individuals with MDR strains was 6.5yrs. Ceftriaxone, Ceftazidime, Cefotaxime and Gentamicin recorded the highest susceptibility while high resistance was recorded for Trimethoprim/Sulfamethoxazole. Resistance in Ampicillin, Chloramphenicol, and Trimethoprim/Sulfamethoxazole alone was 28.5%, 42.8% and 57.1% respectively.

Conclusion

MDR remains a threat in Rural Ghana. Great care and intensive surveillance need to be established to monitor SXT resistance rate before it gets out of hand.