Typhoid Perforation Associated with Extended Spectrumβ-Lactamase Producing Bacteria

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Background: Intestinal perforation is an important cause of death among individuals mostly in developing countries. Although many reports have associated perforations with typhoid infections, reports on the role of other bacterial pathogens, especially resistant bacteria strains, in causing ileal perforations are limited. As part of an ongoing Severe Typhoid Surveillance for Africa (SETA) study in Ghana, we compiled data on ileal perforation cases and the bacteria associated with their occurrence.

Methods: The ongoing SETA study is a nested cross-sectional and longitudinal study, which is designed to determine the burden of typhoid infections in Ghana. The study, which started in the month of May, 2016, is being conducted at the Komfo Anokye Teaching Hospital and the Agogo Presbytarian Hospital.

Results: A total of 547 subjects have been recruited into the study over the past seven months. The prevalence of typhoid (*Salmonella* Typhi) is 2.39% (95%CI = 1.33% - 4.15% and that of invasive Non-Salmonella Typhoid (iNTS) is 1.28% (95%CI = 0.56%-2.74%). Of all the subjects recruited, 1.65% (95%CI = 0.81% - 3.22%) experienced ileal perforation. All cases occurred in children less than 13 years and *Salmonella* organisms were not identified in blood cultures of any of the perforated cases except one with blood culture confirmed extended spectrum β-lactamase-producing *Escherichia coli.* Molecular analysis showed that the isolated bacteria had *blaCTX-M* and *blaTEM* -associated resistance genes. The patient responded well on meropenem and was discharged upon full recovery.

Conclusion: ESBL producing bacteria could be associated with common perforations often regarded as typhoid perforation in children. Physicians should be mindful of this and administer evidence-based therapy when encountered with similar situation.