

***Salmonella* Typhi Producing CTX-M-15 Extended Spectrum β -lactamase in the Democratic Republic of the Congo**

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Background: *Salmonella* Typhi is one of the leading causes of bloodstream infections in the Democratic Republic of the Congo (DRC). We report a CTX-M-15 producing *Salmonella* Typhi from DRC concomitantly showing decreased ciprofloxacin susceptibility (DCS).

Methods: On November 24, 2015, a 6-year old boy presented at a health center in Kwango Province in DRC with a 3-day history of fever, abdominal pain and vomiting. A blood culture was taken, followed by serotyping and antibiotic susceptibility testing by disk diffusion. ESBL screening was performed with clavulanic acid inhibition testing and confirmed by PCR. DCS screening was performed using pefloxacin and nalidixic acid disks, and confirmed by ciprofloxacin E-test and identification of mutations in the quinolone resistance-determining regions (QRDR). The genome of the isolate was sequenced on Illumina HiSeq 2500. Phylogenetic analysis was performed by mapping the genome together with a global collection of 1,832 *Salmonella* Typhi against the CT18 reference genome.

Results: The blood isolate, identified as *Salmonella* Typhi, showed resistance to ampicillin, trimethoprim/sulfamethoxazole, aztreonam and cephalosporins. A CTX-M-15 gene was encoded downstream of a mobile insertion element *ISEcp1* on a type Y plasmid, which showed high similarities to the *Klebsiella pneumoniae* plasmid pKP12226. The isolate was resistant to pefloxacin and nalidixic acid, had a ciprofloxacin MIC-value of 0.38 mg/L and a Ser83Phe substitution in the *gyrA* gene. Acquired antibiotic resistance genes against aminoglycosides (*Aac6-iaa*), sulfonamides (*SulI*), trimethoprim (*DfrA7*) and ampicillin (*TEM-1D*) were detected. Phylogenetic analysis showed that the isolate did not belong to the dominant H58 clade.

Conclusion: The finding of an ESBL producing *Salmonella* Typhi in DRC is of great concern, especially since the CTX-M-15 gene was found on a mobile element. In addition to the high prevalence of MDR and DCS among *Salmonella* Typhi isolates, therapeutic options for this pathogen are decreasing further. Continuous surveillance and appropriate use of azithromycin are imperative.