Enterotoxigenic *Escherichia Coli* Toxins and Colonization factors among Zambian children presenting with moderate to severe diarrhea to selected health facilities

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Background

Enterotoxigenic *Escherichia Coli* (ETEC) is an important cause for diarrhoeal disease in children and travelers globally. Epidemiological data on the distribution of strains of ETEC, toxins (LT and ST) and associated colonization factors (CFs) is important for evaluation of candidate vaccines.

Methods

We used conventional PCR and quantitative PCR to screen for toxins and CFs using DNA extracted from 109 stool samples which tested positive for ETEC on the Luminex xTAG GPP panel collected from children presenting with moderate-to-severe diarrhoea at selected health facilities in Lusaka.

Results

Forty nine out of 106 (46.2%) were positive for at least one toxin (i.e. LT/STh/STp), ST was 18 (17%) [STh 16 (15%) and STp 2 (~2%)], and LT 16 (15%)The mean age of children with detected toxin or CFs was 15.4 months (95% CI: 12.2, 18.7), 20 (40%) where female . The most frequent CF detected was CS6 with 6/49 (12.2%), followed by CS2, CS3 and CS7 with 2/49 (4.1%) each. CS6 was common across all toxin combinations (LT only, STh only and a combination of LT/STh) while CS2, CS3, CS7 were identified in both LT and LT/STh strains respectively.

Conclusion

Our results offer the first glimpse into relevant CFs in ETEC diarrhoea in Zambia and that Luminex platform is not as specific as ordinary PCR and qPCR for ETEC detection. Further studies are required to assess the relative importance of these CFs in terms of disease severity as well as track their sero-epidemiology over time.