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ePoster Viewing

General microbiology

Mixed infection of *Vibrio cholerae* O1 and different *Salmonella enterica* serovars in hospitalized patients in Delhi, India during 2012-2014

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Background: AIM & OBJECTIVE To study the mixed infection among diarrhoea cases and to correlate the drug resistance between *Vibrio cholerae* O1 and *Salmonella* sp. since polymicrobial etiology is an emerging trend observed in diarrhoeal disease surveillance. We were also interested to determine the ctxB genotype in *V. cholerae* O1 isolates.

Material/methods: During 2012-2014 we have isolated 16 cases of mixed infection of *V. cholerae* O1 and *Salmonella* sp. from stool samples of patients admitted in Maharishi Valmiki Infectious Diseases Hospital, Kingsway Camp, Delhi, India. Rectal swab samples were processed as per WHO guidelines. Antimicrobial sensitivity and MIC of all 14 (7 *V. cholerae* and 7 *Salmonella* sp.) isolates out of 32 isolates were carried out by Kirby-Bauer disk diffusion method against 10 antimicrobial drugs as per CLSI guidelines 2013. Double mismatch amplification mutation assay (DMAMA) PCR was used in this study to detect the ctxB genotype using primer pair ctxB-F3 with Rv-Cla and ctxB-F4 with Rv-Cla.

Results: All 7 isolates of *V. cholerae* was confirmed serologically O1 Ogawa and out of 7, 5 *Salmonella* sp. were serologically confirmed *Salmonella enterica* subsp. *enterica* serovar Kentucky (6,8:i:z6) and 2 were *Salmonella enterica* subsp. *enterica* serovar Typhi (9,12[Vi]:d:-). In *V. cholerae* O1, all isolates were sensitive to azithromycin, amikacin, ceftriaxone, ciprofloxacin, gentamicin, imipenem, and norfloxacin and resistant to ampicillin, amoxycylav and nalidixic acid followed by 71% cefotaxime and 57% polymixin B. The MIC of ampicillin resistant strains was ranging between 8 µg/ml to 64 µg/ml. In *S. Kentucky*, all 5 isolates were sensitive to amikacin, cefotaxime, ceftriaxone, chloramphenicol, gentamicin and imipenem and resistant to ciprofloxacin, ampicillin, nalidixic acid and norfloxacin. *S. Typhi* isolates were 100% resistant to ciprofloxacin, nalidixic acid and norfloxacin and sensitive to remaining drugs. The MIC of ciprofloxacin was 32 µg/ml and ampicillin 512 µg/ml for all resistant isolates. All 7 *V. cholerae* O1 were positive for ctxB of Haitian genotype, yielded a 191 bp fragment with primer pair ctxB-F3/Rv-Cla for Haitian genotype and not amplified with ctxB-F4/Rv-Cla for classical genotype.

Conclusions: Polymicrobial infections among hospitalized patients clearly emphasized the need to pursue a more exploratory approach to understand the epidemiological, intermicrobial interactions and clinical implications of the presence of more than one pathogen. Constant antibiotic surveillance is required as bacteria were highly resistant to various antimicrobial agents including ampicillin and ciprofloxacin which are currently recommended for empiric treatment of diarrhoea.