Medical Microbiology & Diagnosis
ISSN 2161-0703
2020
Vol.9 No.4

Extended-spectrum β-lactamases producing multidrug resistant E. coli among dogs, cats and their owners in Pakistan

Rana Muhammad Abdullah and Mashkoor Mohsin

Institute of Microbiology, University of Agriculture, Faisalabad, Pakistan

Abstract

Infections caused by multidrug resistant (MDR) *E. coli* strains are common both in humans and animals. In particular, the pet animals have been considered as a potential carrier of MDR *E. coli*. Therefore, this study was designed to detect the ESBL producing *E. coli* isolates in companion animals, their owners and veterinary professionals. A total of 105 rectal swabs from pets (n=45), their owners (n=45) and veterinary professionals (n=15) were screened for the presence of ESBL producing *E. coli*, MDR and their genetic relatedness.

A total of 73/105 (69.5%) ESBL producing *E. coli* were recovered from this study. ESBL *E. coli* isolates in dogs (18/22) and dog owners (13/22) were 81.8% and 59%, respectively. ESBL *E. coli* isolates in cats (17/23) and cat owners (13/23) were 74% and 56.5%, respectively. While these *E. coli* isolates in veterinary professionals (12/15) were 80 %. Of these, isolates 23/73 (31.5%) isolates showed MDR phenotype. Resistance to ampicillin, cefotaxime, ciprofloxacin and nitrofurantoin AMP-CTX-CIP-F represented the most common pattern of MDR (17.4%). None of the isolate was resistant to tobramycin. Among the ESBL *E. coli* with MDR, PCR detected $bla_{\text{CTX-M}}$ as the most common ESBL genotype (19/23). CTX-M-1 group was found among all the 19 $bla_{\text{CTX-M}}$ positive *E. coli*. Furthermore, BOX-PCR fingerprints showed distinct clonal groups indicating high genetic diversity among CTX-M-1 producing *E. coli* isolates. The presence of multidrug resistant *E. coli* in particular of ESBL class CTX-M-1 in dogs, cats, their owners and veterinary health workers pose a zoonotic threat for the spread of multidrug resistant bacteria.

Biography:

I Have completed my D.V.M from University of Agriculture Faisalabad and then Mphil degree in microbiology from GCUF Faisalabad. Currently I am doing Ph.D in microbiology from university of agriculture Faisalabad.

Speaker Publications:

1. Masood, Fatima & Abdullah, Rana & Anam, Sidra & Arshad, Muhammad & Anjum, Faisal. (2019). Occurrence and antibiogram of enteric bacterial isolates from stool samples of gastroenteritis children under 5 years of age in district Faisalabad, Pakistan. Pure and Applied Biology. 8. 2087-2094. 10.19045/bspab.2019.80153.
2. Bilal, Shahrukh & Anam, Sidra & Mahmood, Tauqeer & Abdullah, Rana & Nisar, Sajid & Kalsoom, Furkhanda & Luqman, Muhammad & Anjum, Faisal. (2019). Antimicrobial profiling and molecular characterization of antibiotic resistant genes of Proteus vulgaris isolated from tertiary care hospital, Islamabad, Pakistan. Pakistan journal of pharmaceutical sciences. 32. 2887-2891.

49th World Congress on Microbiology; Webinar- June 15-16, 2020.

Abstract Citation:

Rana Muhammad Abdullah, Extended-spectrum β-lactamases producing multidrug resistant E. coli among dogs, cats and their owners in Pakistan, Microbiology 2020, 49th World Congress on Microbiology; Webinar- June 15-16, 2020.

(https://europe.microbiologyconferences.com/abstract/2020/extended-spectrum---lactamases-producing-multidrug-resistant-e-coli-among-dogs-cats-and-their-owners-in-pakistan)