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P22 - EVALUATION OF MULTIDRUG-RESISTANT *ESCHERICHIA COLI* IN URINARY INFECTIONS: RETROSPECTIVE STUDY AND TREND ANALYSIS IN PETS FROM TWO VETERINARY TEACHING HOSPITALS IN ITALY, 2014-2017

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Escherichia coli is the most frequent bacterium involved in uncomplicated urinary tract infections (UTIs) in pet animals. The treatment is sometimes threatened by the steady increase in the number of strains bearing concurrent resistance to various antimicrobial agents. The aim of this study was to determine multidrug-resistance patterns in uropathogen *E. coli* (UPEC) isolated from dogs and cats. A retrospective study on samples collected from January 2014 to December 2017 at two Veterinary teaching Hospitals, located in Northern (Turin, H1) and Central (Camerino, H2) Italy, was carried out . Strains were collected from dogs (H1 n=119; H2 n=96) and cats (H1 n=64; H2 n=34) with UTI. Each strain was tested to 18 antibiotics belonging to 8 categories (Aminoglycosides; Carbapenems; Folate pathway inhibitors; Not-extended spectrum Cephalosporins: 1st and 2nd generation (C1-2); Extended spectrum cephalosporins: 3rd and 4th generation (C3-4); Penicillins; Penicillins + β-lactamase inhibitors; Quinolones) by Kirby-Bauer test and interpreted according to the EUCAST guidelines [1]. Isolates were classified as MDR (Multidrug-resistant), XDR (extensively drug-resistant) and PDR (pandrug-resistant) [2]. Data were analyzed using Chi Squared or Fisher exact tests, using the STATA 13.0 software. Among 313 isolates, 25.2% were susceptible to all tested antibiotics. Comparable multiresistance profiles were observed in H1 and H2 isolates. The antimicrobials categories with highest resistance rate were: Penicillins + β-lactamase inhibitors, Quinolones, and Penicillins (43.4%, 41.8% and 39.9%, respectively), followed by Folate pathway inhibitors (37.1%), Aminoglycosides (34.5%) and Cephalosporins (30.5%). Low levels of resistance were observed for Carbapenems (4.2%). 158 strains were MDR (50.5 %), of which 29.7% were XDR and none PDR. Among MDR, a co-resistance to Aminoglycosides, C3-4, and Quinolones was observed (12.1%, n=313). The trend encompassing the years 2014-2017 showed an increase of MDR (50.4 to 58.0%). The differences in MDR resistance were not significant between H1 (45.9%) and H2 (56.9%, P=0.055). Concerning the animal species, canine E. coli showed a greater resistance to C1-2 than cats (35.8% vs 20.4%, P=0.006), while a significant percentage of resistance to Penicillins was observed in cats (50.0% vs 35.3%, P=0.014).
The UPEC isolated in this study showed high level of multidrug resistance. Moreover, 15.0% of all UPEC tested, were classified as XDR . These findings evidence serious risks for a potential zoonotic transmission of these bacteria and strongly hijack the therapeutic options left.

[1] European Committee on Antimicrobial Susceptibility Testing (EUCAST) European antimicrobial breakpoints, http://www.eucast.org/clinical_breakpoints/.
[2] Magiorakos AP et al. Multidrug-resistant, extensively drug-resistant and pandrug-resistant bacteria: an international expert proposal for interim standard definitions for acquired resistance. Clinical Microbiology Infection, 18:268-281, 2012.