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Antimicrobial resistance changes in *E. Coli* isolated from raptors in a center for injured wild animals during recovery.

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Abstract

E. coli is an usual inhabitant of the avian gut and can easily acquire and transfer resistance genes. Commensal strains isolated from wild birds can be used as indicator of changes in antimicrobial resistance in animals that usually are not treated with antibiotics, but nevertheless they suffer the presence of anthropogenic activities. The aim of this work is to evaluate the effect of recovery/hospitalization on the antimicrobial resistance in fecal *E. coli* isolated from raptors submitted to the 'Centro Animali Non Convenzionali (C.A.N.C.)' of the Department of Veterinary Sciences (Turin University, Italy). This center takes care of injured wild animals, with the goal to return them into the wild, and is also involved in projects concerning the protection and conservation of some endangered species. Main anamnestic data (e.g. sex, age, reason for admission, antimicrobial use during hospitalization) were registered at the entrance of animals. Stool samples from 28 birds were collected at admission time (on day 0: T₀) and during recovery (on day 7; T₁) for each animal, with a total of 56 isolates of enteric *E. coli*. Identification of *E. coli*, ESBL production and antibiotic sensitivity tests were carried out following standard methods. The antibiotics panel included antimicrobial used in both veterinary and human medicine. Data were analyzed by descriptive statistics. Antimicrobial sensitivity tests carried out at the admission (T₀) showed that 13 (46%) animals were infected with multidrug resistant strains and 2 birds were colonized by ESBL isolates. During the recovery (T₁), ESBL *E. coli* were acquired in 2 animals (7.1%) and appearance of multidrug-resistance was observed in 8 birds (28.6%). To the best of our knowledge, this is the first report about changes associated to recovery in avian fecal *E. coli* comparing antibiotic resistance profile on the day of admission and after one week of permanence. Our work confirms data obtained on hospitalized domestic animals (e.g. dogs and horses). This finding is relevant because, in the routine of veterinary recovery of wild birds, most of the animals are committed for not less than two weeks.