
View Abstract

CONTROL ID: 3615154

TITLE: Antimicrobial resistance patterns of bacterial pathogens isolated from canine urine samples submitted to the veterinary diagnostic laboratory of the University of Illinois

PRESENTATION TYPE: Oral or Poster Presentation

CURRENT CATEGORY/DISCIPLINE: Epidemiology | Bacteriology/Mycology

ABSTRACT BODY:

Narrative: The emergence of antimicrobial resistance (AMR) poses a threat to animal and human health. In this study, we retrospectively evaluated the prevalence and antimicrobial susceptibility of bacterial pathogens isolated from canine urine samples submitted to the Veterinary Diagnostic Laboratory of the University of Illinois between 2019 and 2020. There were 830 isolates from a total of 1051 urine samples submitted to the laboratory. Among the culture-positive isolates, the most common Gram-positive bacteria were *Staphylococcus pseudointermedius* (n=144) (36 of them were methicillin-resistant *Staphylococcus pseudointermedius* (MRSP)), *Enterococcus faecalis* (n=76), *Streptococcus canis* (n=49), and *Enterococcus faecium* (n=30), while the main Gram-negative bacteria included *Escherichia coli* (n=366), *Proteus mirabilis* (n=89), *Klebsiella pneumoniae* (n=25), and *Pseudomonas aeruginosa* (n=24). Susceptibility testing for Gram-positive and Gram-negative bacteria was conducted using the broth microdilution method with Sensititre® COMPGP1F and COMPGN1F panels, respectively. Among Gram-positive bacteria, high frequency of resistance (≥40%) was observed in *Staphylococcus pseudointermedius* to penicillins, tetracycline, doxycycline, and minocycline; in *Streptococcus canis* to amikacin, imipenem, trimethoprim-sulfamethoxazole, chloramphenicol, enrofloxacin, and marbofloxacin; in *Enterococcus faecalis* to rifampin and erythromycin; and in *Enterococcus faecium* to erythromycin, nitrofurantoin, ampicillin, and rifampin. Among the Gram-negative bacteria, a high frequency of resistance was detected in *Klebsiella pneumoniae* to doxycycline. Moderate frequency of resistance (15-39%), among Gram-negative bacteria, has been shown in *E. coli* to ampicillin, amoxicillin-clavulanic acid, doxycycline, tetracycline, cefovecin, cephalexin, and chloramphenicol; and in *Proteus mirabilis* to chloramphenicol and orbifloxacin. These data can guide veterinarians in the empirical treatment of urinary tract infections. As a high prevalence of antimicrobial resistance was detected among isolates, susceptibility testing should be considered before treatment.

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KEYWORDS: Dog, Urine, Antimicrobial resistance.

USAHA Abstract: No

USAHA Membership: No

Award Information

AWARDS: Competitive Student or Trainee Award: Best Oral Presentation|AAVLD/ACVP Resident Diagnostic Pathology Travel Award (awarded by AAVLD)|Competitive Student or Trainee Award: Best Recorded Presentation|Dr. David Bemis Microbiology Trainee Travel Award|Competitive Student or Trainee Award: Best Poster Presentation

Trainee Travel Award - Biographical Data Sheet: (none)

Trainee Travel Award - Letter of Support: (none)

Trainee Travel Award - Trainee Letter: (none)

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Product version number 4.17.4 (Build 117). Build date Tue Jun 8 09:43:30 EDT 2021. Server ip-10-236-26-153