1. Urinary Tract Infections in Dogs and Cats: Urine Culture versus Urinalysis

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Urinary Tract Infections in Dogs and Cats: Urine Culture versus Urinalysis

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Urinary tract infections (UTIs) are a big challenge in clinical practice because of the variability of symptoms and laboratory findings.

The aim of this retrospective study was to evaluate: a) the relations between urine culture results and urinalysis parameters; b) the results of the antimicrobial susceptibility tests.

Urine samples were collected by cystocentesis from 252 dogs and 52 cats, whose diagnostic workup included a differential diagnosis of UTI: all samples underwent a complete urinalysis, UPC ratio assessment and urine culture. Infected vs. sterile results were related to urine physical, chemical parameters and observations from urinary sediment analysis. Statistical analysis was performed using JMP 7.0 (SAS Institute Inc.). A p value < 0.05 was considered significant.

Urine culture was positive in 104 dogs (41%) and 18 cats (33%). The presence of UTI was significantly related to urine physical properties (color and turbidity), USG, and leukocyturia: infections tended to be more frequent in urine samples characterized by a light yellow color, cloudy or sublimpid aspect and low USG. Nevertheless, urine was limpid in 30% of infected samples, and a normal USG was found in 28.6% of dog's UTI but only in 4.8% of cats. Although leukocyturia tends to become higher in infected samples both in dogs and cats ($p < 0.0001$), in 23.1% of infected sediments WBC count was normal. Haematuria detected by dipstick was significantly related to UTI in dogs but not in cats; nevertheless the RBC count in sediment was not related to infection in both species: RBC count was normal in 30.4% of infected feline samples and in 36.4% of canine samples. No significant relation between presence or absence of UTI and albuminuria, bilirubinuria, glycosuria was detected, while UPC tends to become significantly higher in dogs. Although the chi-square test showed a significant relation between infection and the detection of bacteria in urinary sediment, a pseudobacteriuria was found in 20.5% of samples; furthermore, bacteria weren't observed in 25.1% of infected samples (USG < 1.013).

Escherichia coli was isolated in the majority of samples (45.9%), compared to other species: *Staphylococcus* (13.6%), *Proteus* (10.2%), and *Streptococcus* (8.5%). The urinalysis pitfalls and the high antibiotic resistance verified towards the most widely used molecules (penicillins, cephalosporins, quinolones) strongly indicate the importance to perform antimicrobials susceptibility tests to avoid the risk of failure associated with the use or abuse of empiric therapies in UTIs.

Conflicts of Interest

No conflicts of interest reported.