

Presence of Residual Antibiotics in Urine and its Effect on Urine Culture

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The presence of antimicrobial agents in body fluids may potentially interfere with microbiological cultures. Urine is commonly tested for antibiotic activity since most chemical compounds achieve high concentrations in urine. Therefore, it is important to understand the use of antibiotic at the time of investigation and prior to the investigation requesting for a urine specimens' culture. If any antibiotic treatment was commenced prior to specimen collection, the sensitivity of bacterial cultures is reduced leading to false-negative results. The study was carried out to detect the presence of antibiotic residues in urine specimens received for culture and to identify the number of false negatives among these. A total of 265 urine specimens received at the hospital laboratory and which were reported as culture negative were tested over 6 months for residual antibiotic activity using the disk diffusion bioassays for the detection of antibiotic activity in urine. Suspensions of *Escherichia coli* (Gram - ve) ATCC 25922 and *Staphylococcus aureus* (Gram + ve) ATCC 25923 similar to 0.5 McFarland was seeded on two Mueller-Hinton agar plates and 6 sterile filter paper disks were placed on each plate. A volume of 20 μ L of uncentrifuged urine sample was added onto the disks and plates were incubated overnight. Specimen with a sufficient concentration of an antibiotic creating a zone of inhibition was interpreted as a positive result given below. Of the samples collected 60% (159/265) were of females and 40% (106/265) were of males. A 19.2% (51/265) of the specimens exhibited inhibition zones indicating the presence of antibiotics active against *Escherichia coli* ATCC 25922 and *Staphylococcus aureus* ATCC 25923. Of the positive samples a (51), 25.5% (13/51) showed a zone of inhibition for Gram-positive bacteria and 13.7% (7/51) were positive against Gram negatives. And Therefore, a total of 60.8% (31/51) of the samples were either Gram positives or Gram negatives. Therefore, we can assume a 19.2% of specimens had residual antibiotics to produce false negative culture results. This study has shown that about 1/5 of specimens contain antibiotics that interfere with culture results. Since when urine culture requested most often a detailed history of the use of antibiotics by the patient is not recorded during the history taking. Therefore, obtaining such information is important before requesting urine for culture thereby would prevent a missed diagnosis of urinary tract infections.

Keywords: *Residual antibiotics, Bacterial cultures*