

**P1473**

**Paper Poster Session**  
**Urinary tract infections**

**Relationship between conventional cultures and flow cytometry for the diagnosis of urinary tract infection.**

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**Background:** Urine culture is the gold standard for the diagnosis of urinary tract infections (UTI). The implementation of flow cytometry (FC) before the culture allows the automation in quantification and recognition of cell components. This screening method could lead to a reduction in the number of cultured urines, a faster report of negative results as well as the possibility to relate the data obtained with cultured uropathogens in specimens from patients with a suspected UTI.

**Material/methods:** A retrospective study was performed with urine samples that were sent to the Microbiology Laboratory from June 2015 to July 2015. All samples were analyzed by Sysmex UF-1000i FC and those having criteria for their culture (> 25 leucocytes/microlitre or > 100 bacteria/microlitre) were processed by quantitative urine culture on CPSE agar. The urine was considered contaminated if  $\geq 2$  different species were isolated. The measured variables were age, gender, number of red blood cells (RBC), white blood cells (WBC), epithelial cells (EC) and isolated microorganisms. The data were analyzed with Epi info software.

**Results:** 4961 samples were processed by FC, 2918 of which had criteria for culture. The reduction in the number of cultured urines was 41.18%. 84.82% of the patients were female and the average age was 52-year old. The most common uropathogen was *Escherichia coli* (61.12%), followed by *Klebsiella spp.* (12.81%), *Enterococcus spp.* (11.65%) and *Proteus spp.* (4.66%).

MEDIAN (RANGE)			
	WBC (cells/ $\mu$ l)	RBC (cells/ $\mu$ l)	EC (cells/ $\mu$ l)
<i>E.coli</i>	57.1 (0.2-4997.6)	13.4 (0.2-4075.8)	4.5 (0.0-126.6)
<i>Klebsiella spp.</i>	80.5 (0.5-3121.0)	16.8 (0.5-467.4)	4.1 (0.0-65.7)
<i>Enterococcus spp.</i>	16.2 (0.4-14869.8)	14.3 (1.0-515.0)	6.7 (0.1-157.0)
<i>Proteus spp.</i>	63.6 (1.3-1812.0)	11.7 (1.6-1962.9)	8.3 (0.1-123.5)
Other gram-negative bacilli	44.1 (1.2-25240)	12.7 (0.5-755.2)	3.2 (0.0-33.4)
Other microorganisms	75.3 (0.3-2799.7)	22.4 (3.2-571.9)	5.4 (0.1-259.2)
Contaminated urine	14.5 (0.1-9250.6)	16.4 (0.2-3585.1)	8.5 (0.0-519.0)
Negative urine	24.8 (0.1-6372.9)	17.6 (0.2-11486.4)	12.3 (0.0-962.7)

Regarding to the WBC count, negative urines cultures were significantly associated with less WBC count than samples with *Escherichia coli* ( $P < 0.001$ ), *Klebsiella spp.* ( $P < 0.001$ ) and *Proteus spp.* ( $P < 0.001$ ), but not *Enterococcus spp.* ( $P = 0.07$ ). Contaminated urines had significantly lower leukocyte counts than those with *Escherichia coli* ( $P < 0.001$ ), *Klebsiella spp.* ( $P < 0.001$ ) and *Proteus spp.* ( $P < 0.001$ ), but no differences were found with *Enterococcus spp.* ( $P = 0.729$ ). Negative urines cultures had significantly more EC count than all positive samples ( $P < 0.05$ ). Contaminated urines were

associated with more EC count than *E. coli* and *Klebsiella spp.* ( $P < 0.001$  for both), but not with *Enterococcus spp.* ( $P = 0.164$ ) and *Proteus spp.* ( $P = 0.865$ ).

**Conclusions:** The use of the UF-1000i FC for screening of urine samples allows to a reduction in the number of cultured urines. WBC number correlated well with most significant isolates. The obtained results for *Enterococcus spp.* suggest a low significance of these isolates as cause of UTI.