

Importance of Urine Dipstick in Evaluation of Febrile Infants with Positive Urine Culture. An Spanish Pediatric Emergency Research Network's (riseup-SPERG Study)

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Guidelines from the American Academy of Pediatrics (AAP) define a urinary tract infection (UTI) as the growth of >50000 ufc/ml in a urine culture (UC) of a single bacterium with an altered urine dipstick (UD) or urinalysis associated

Objective: To compare analytical and microbiological characteristics of febrile infants depending on the result of the UD and the UC

Design/Methods: Subanalysis of a prospective multicenter study developed in 19 Spanish Pediatric Emergency Departments members of the RISEUP-SPERG Network, including infants less than 90 days old with fever without source attended between Oct'11 and Sep'13.

UD was considered positive if there was a positive leucoesterase or nitrite test. Patients with a positive blood or cerebrospinal fluid culture who grown a different pathogen in the urine culture, or had a normal urine culture were excluded of the analysis, because having an invasive bacterial infection (IBI) not secondary to UTI.

Results: 3,401 infants were included, being 2,029 (59.7%) male. After excluding 62 (1.9%) patients due to having an IBI not secondary to UTI, the remain 3339 patients were analyzed. Table 1 shows characteristics of patients.

	1	2	3	4	5	6
Urine dipstick	Negative	Altered	Negative	Negative	Altered	Altered
Urine culture (cfu/ml)	None	None	10000-50000	>50000	10000-50000	>50000
n n (%)	2426 (72,6)	151 (4,5)	52 (1,6)	106 (3,2)	62 (1,9)	542 (16,2)
<i>E. coli</i> n (%)	-	-	26 (52)	60 (57,1)	51 (82,3)	488 (90,2)
IBI associated n (%)	-	-	3 (5,8) (IC 95% 2,0-15,6)	3 (2,8) (IC 95% 1,0-8,0)	1 (1,6) (IC 95% 2,9-8,7)	38 (7) (IC 95% 5,2-9,5)
Procalcitonin (ng/ml) mean (CI95%)	0,32 (0,26-0,38)	0,96 (0,36-1,57)	0,49 (0,06-0,91)	0,33 (0,21-0,44)	2,67 (0,97-4,37)	3,67 (2,55-4,78)
C- reactive protein (mg/l) mean (CI95%)	10,55 (9,93-11,16)	22,53 (12,40-28,66)	13,22 (8,21-18,23)	18,02 (11,83-24,22)	46,06 (34,6-57,53)	55,0 (50,25-59,74)

Only patients in group 6 would be classified as UTI according to AAP guidelines. Among patients with an altered UD, infants with a UC > 50,000 ufc/mL were similar to those with a UC 10,000-50,000 ufc/mL in relation to the isolated bacteria and the blood biomarkers. Patients with a normal UD and a positive UC show an inflammatory response similar to those with a negative UC.

All IBIs in groups 3, 4 and 5 were bacteremia. Four of them were <15 days old. All of them had PCT or CRP blood levels higher than 0.5 ng/ml or 20 mg/L, respectively.

Conclusions: The cut-off of 50,000 ufc/mL to diagnose a UTI should be reevaluated. Patients older than 15 days old with a negative UD and a positive UC should be managed individually as many of them could be asymptomatic bacteriurias.