

**Diagnostic value of leukopenia in young febrile infants – preliminary data of a multicenter prospective study**

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**Background:** infants less than 90 days old with fever without source (FWS) have a greater risk of having a serious bacterial infection (SBI). For this reason, several complementary tests are usually performed in this group of age, including a WBC count. Rochester criteria include the leukopenia as a high-risk factor, whereas Philadelphia criteria do not. However, both sets were developed more than 20 years ago and epidemiological changes produced during these decades could have modified the value of the parameters proposed.

**Objective:** to analyze the relationship between leukopenia and the risk of SBI and invasive bacterial (IBI) infection among infants under 90 days old with FWS.

**Methods:** infants less than 90 days old with FWS attended since October 2011 in 17 Pediatric Emergency Departments were prospectively included. Leukopenia was defined as a white blood cell (WBC) count  $<5,000/\text{mcl}$ . An SBI was defined as the isolation of a bacterial pathogen in blood, cerebrospinal fluid, urine or stools. An IBI was defined as its isolation in blood or cerebrospinal fluid culture. Patients attended during the first 10 months of the study are analyzed.

**Results:** a total of 1,827 infants were included. After exclusion criteria, 1,518 (83.0%) were analyzed, presenting 82 of them (5.4%) leukopenia and 368 (24.2%) leukocytosis. An SBI was identified in 310 patients (20.4%) and 43 of them (2.8%) were diagnosed with an IBI. Tables show the SBI and IBI rates according to the WBC count in the global sample [table 1] as well as according to the patients' general appearance [table 2].

Table 1:

	SBI rate	IBI rate
Leukopenia (n= 82)	15.9%; p=0.99	7.3%; p<0.01
Normal WBC count (n= 1,068)	15.2%	2.1%
Leukocytosis (n= 368)	36.1%; p<0.01	4.1%; p=0.05

Table 2

	SBI rate	IBI rate
Well-appearing patients (n=1,362)		
Leukopenia (n= 69)	11.6%; p=0.57	2.9%; p=0.29
Normal WBC count (n= 957)	14.8%	1.5%
Leukocytosis (n= 336)	36.0%; p<0.01	3.3%; p=0.06
Not well-appearing patients (n=155)		
Leukopenia (n= 13)	38.5%; p=0.13	30.8%; p=0.02
Normal WBC count (n= 111)	18.0%	7.2%
Leukocytosis (n= 31)	35.5%; p=0.06	12.9%; p=0.29

**Conclusion:** Among well-appearing infants less than 90 days old with FWS, patients with leukopenia are not in a higher risk for SBI and IBI than those with normal WBC count, and its inclusion as a risk factor has to be re-considered. Leukopenia in not well-appearing infants increases the risk of IBI.