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Study Group associated with your submission (if applicable):
Clinical study group of Bacterial Meningitis or the Research network of the Spanish Society of Pediatric Emergency Medicine (RISEUP-SPERG)

QUESTIONNAIRE INFORMATION
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No awards selected

Title: Procalcitonin and Bacterial Meningitis Score to distinguish bacterial from aseptic meningitis in children. A study of the Research Network of the Spanish Society of Pediatric Emergency Medicine (RISEUP-SPERG)

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Background: Bacterial Meningitis Score (BMS) and biomarkers such as procalcitonin (PCT) are useful tools to distinguish aseptic from bacterial meningitis and to identify patients at very low risk of bacterial meningitis.

Objective: To compare the feasibility of the Bacterial Meningitis Score and Procalcitonin modified Bacterial Meningitis Score (BMS-PCT) to identify children with bacterial meningitis (BM) and aseptic meningitis (AM).

Design/Methods: Observational, prospective multicenter study (9 pediatric EDs) from October 2012 to September 2015 under the scope of the Research Network of the Spanish Society of Pediatric Emergency Medicine (RISEUP-SPERG). We included children less than 14 years old diagnosed with meningitis. We compared BMS and PCT modified-BMS (PCT instead of Absolute Neutrophil Count; [PCT<0.5]=0; [PCT≥0.5]= 1)

Results: During the study period, 461.220 episodes were registered in the 9 PEDs being 233 diagnosed with meningitis (0.05%). Of these, 30 were excluded due to lack of all data and 31 not to be applicable the BMS. Of the 172 included patients 9 were diagnosed with BM and 163 with AM.

BMS and BMS-PCT values related to different meningitis				
		0	**1**	**>1**
BM n= 9	**BMS**	1, 11.1%	3, 33.3%	5, 55.6%
	BMS-PCT	1, 11.1%	1, 11.1%	7, 77.8%
AM n= 163	**BMS**	73, 44.8% 95% IC 37.2- 52.4	80, 49,1% 95% IC 41.4- 56.8	10, 6.1% 95% IC 2.4- 9.7
	BMS-PCT	133, 81.6% 95% IC 75.6- 87.5	26, 15.9% 95% IC 10.3- 21.5	4, 2.5% 95% IC 0.1- 4.9

Yield of BMS and BMS-PCT for BM						
	Sensitivity	Specificity	Positive Predictive Value	Negative Predictive Value	Positive Likelihood Ratio	Negative Likelihood Ratio
BMS≥1	88.9 (51.7-99.7)	44.8 (37- 52.7)	8.2 (3.6-15.4)	98.6 (92.7-99.9)	1.61,1.23-2.11	0.25, 0.04-1.59
BMS-PCT≥1	88.9 (51.7-99.7)	81.6(74.7-87.2)	21.1(9.6-37.3)	99.2 (95.9-99.9)	4.83, 3.25-7.19	0.14, 0.02-0.87

The child with bacterial meningitis with BMS and PCT modified-BMS = 0 was a five months old girl with pneumococcal meningitis without CSF pleocytosis.

Conclusions: Although larger studies are needed, the inclusion of PCT may increase the accuracy of the BMS to distinguish aseptic from bacterial meningitis and to identify patients at very low risk of bacterial meningitis.

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Abstract Disclosure Info: Disclosures

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