

European Respiratory Society Annual Congress 2013

Abstract Number: 5418
Publication Number: P2717

Abstract Group: 10.1. Respiratory Infections

Keyword 1: Pneumonia **Keyword 2:** Inflammation **Keyword 3:** Systemic effect

Title: Community acquired pneumonia, hepcidin and anemia

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Body: Pneumonia is an acute inflammation often complicated by the development of anemia. Hepcidin is an IL-6-induced key modulator of inflammation-associated anemia. The association between inflammation, hepcidin and anemia has not been investigated in pneumonia. 60 patients were enrolled if admitted out of an infection and serum C-RP ≥ 3 mg/dl. On day 1 (T1) and 6 (T6) serum hepcidin (HEPC), cytokines, inflammation and iron markers were tested. Systemic Inflammatory Response Syndrome and Pneumonia Severity Index (PSI) were assessed at admission. Patients with pneumonia were 27 and 33 patients had other acute infectious diseases. On T1 main findings are showed in figure 1. IL-6 and C-RP concentrations correlated with HEPC levels and the rate of decrease of hemoglobin (Hb) in all patients ($r = -0.330$, $p = 0.009$). On T6, both groups lost a Hb mean of 0.5g/dL, but patients with pneumonia were more frequently anemic (77.8%) than the others (48.5%; $p = 0.032$), with an odd ratio of 3.7 for being anemic. According to PSI, 37.0% patients were stratified in the low-risk, 48.2% in the intermediate and 14.8% in the highest-risk-class. Hb loss had a weak negative correlation with PSI score. 70.4% of patients with pneumonia and 42.4% of the other group had sepsis. Despite high T1 HEPC mean levels in both groups, only patients with sepsis and pneumonia had a significant Hb decrease between T1 (11.9g/dL) and T6 (11.3g/dL; $p = 0.013$). Patients with pneumonia had an associated 30-day mortality rate of 7.4%, compared to 3% of patients without pneumonia.

	INFLAMMATION				p
	with pneumonia		without pneumonia		
Variables	mean	\pm SD	mean	\pm SD	
Hb g/dL	11.9	1.6	12.8	1.5	0.038

C-RP mg/dL	16.9	7.7	10.4	5.8	<0.001
IL-6 pg/mL	87.9	78.5	54.6	34.4	0.048
HEPC nM/L	24.9	14.6	21.9	16.3	ns