

Emergency department markers of complicated pediatric pneumonia

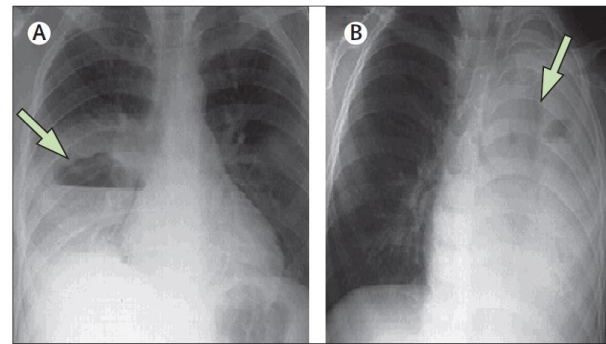
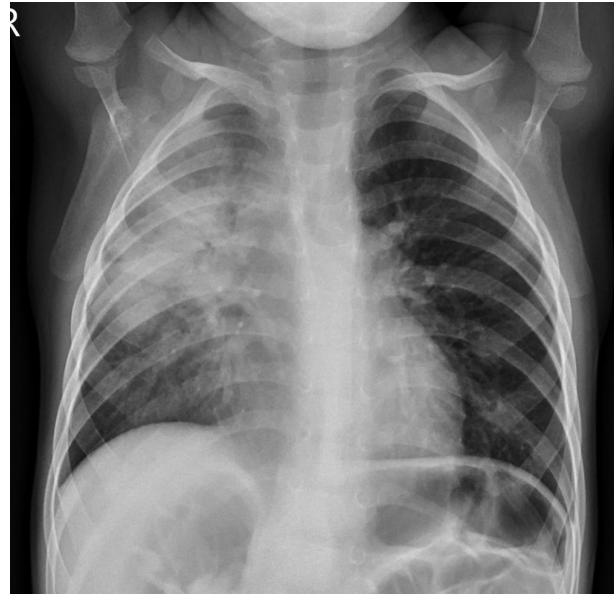
Zafnat Prokocimer Yair MD, Ron Berant MD, Roi Feldman MD, Nir Samuel MD, PhD

Background:

- Pneumonia is common in children and most patients respond well to outpatient therapy.
- However, in some, pneumonia may be complicated by significant respiratory distress, pleural effusions requiring hospitalization, drainage, and intensive care.
- We aimed to explore differences in the initial laboratory results between uncomplicated and complicated disease.

Methods:

- A retrospective cohort study at a tertiary children's hospital.
- We extracted the medical records of all previously healthy children admitted to the hospital with pneumonia from June 2016 to June 2020.
- Patients were classified into three groups: Uncomplicated pneumonia (UP), pleuropneumonia (PLP) and severe complicated pneumonia (SCP) defined as sepsis, need for drainage or intensive care.
- We explored differences in blood count, C-reactive protein, albumin and phosphor on initial presentation to the ED.



Results:

- During the study period, 4,419 children were diagnosed with pneumonia in the ED and 887 children were admitted.
- 353 were excluded due to comorbidities or lack of radiographic evidence.
- The average age was 3.7 years [3.5±SD], 57% were male.
- Of the 534 patients, 329(61.5%) had UP, 133 (25%) had PLP and 72 (13.5%) had SCP.
- The WBC was 20.45 [10.14 ±SD], 19.13 [9.65 ±SD] and 21.16 [10.29 ±SD] ($p=0.31$) and the ANC was 14.8 [9.3 ±SD], 14.33 [8.7 ±SD] and 16.3 [9.67 ±SD] for UP, PLP and SCP respectively, ($p=0.27$). The CRP was 15.8 [12.9 ±SD], 20.4 [13.8 ±SD] and 23.4 [11.6 ±SD] ($p<0.01$) and phosphor was 4.18 [0.99 ±SD], 3.85 [0.89 ±SD] and 3.8 [0.95 ±SD] for UP, PLP and SCP, respectively ($P<0.01$). Albumin was 3.96 [0.43 ±SD], 3.72 [0.43 ±SD] and 3.54 [0.54 ±SD] for UP, PLP and SCP respectively ($p<0.01$).

Conclusion:

- We found ED CRP, phosphor and albumin levels to be associated with complicated pediatric pneumonia.
- WBC and ANC levels were not associated with pneumonic complications.
- In addition to clinical assessment, these markers may aid decision making regarding further referral and management.

zafnap@gmail.com

Emergency Department, Schneider Children's Medical Center, Petah Tikva, Israel;