C-reactive protein values to predict sepsis-induced inflammatory response in premature infants

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**Background**

- C-reactive protein (CRP) is a recognized biomarker of the systemic inflammatory response and levels are increased in sepsis.
- Sepsis is also a well-known cause of acute lung injury (ALI).
- We hypothesized that initial and peak CRP values would correlate with the degree of sepsis-induced ALI as measured by the pulmonary severity score (PSS).

**Objectives**

1. Determine if confirmed (CF) sepsis events are associated with higher initial and peak CRP values than rule out (RO) sepsis events.
2. Investigate if initial and/or peak CRP correlates with the severity of sepsis-induced ALI as measured by the PSS.

**Design/Methods**

- Inclusion criteria: infants < 31 weeks GA and < 1500 grams with late onset sepsis and rule out sepsis episodes.
- CRP collected at time of sepsis diagnosis (time 0) and peak CRP during treatment period.
- Sepsis subtypes defined as: 1. Blood culture positive (+), 2. Necrotizing enterocolitis (NEC), 3. Urinary tract infection (UTI), 4. Culture negative (Cx) sepsis: blood culture negative but treated with antibiotics (ABXs) > 6 days.
- PSS collected at different time points during sepsis event as follows:
  - 0 hr
  - 24 hr after ABXs
  - 48 hr after ABXs
  - +24 hr
  - +48 hr
  - +72 hr
  - +168 hr

**Results**

- CRP as both an early and late biomarker for sepsis.
- CRP may be a useful marker for sepsis in premature infants.
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**Discussion/Conclusion**

- CRP is significantly higher both initially and at peak values in infants with CF vs RO sepsis events.
- CRP values correlate with PSS over time suggesting CRP as both a marker for sepsis and potentially as a predictor of the severity of sepsis-induced ALI.