

BIOMARKERS IN IDENTIFYING SEVERE COMMUNITY-ACQUIRED PNEUMONIA (SCAP) CLINICAL OUTCOMES AND COMPLICATIONS

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Background: Appropriate early prognostic assessment is crucial for SCAP patients management. We studied accuracy of C-reactive protein (CRP), interleukin-2 (IL-2), interferon- γ (IFN- γ), free triiodothyronine (fT3), free tetraiodothyronine (fT4), thyroid stimulating hormone (TSH), total cortisol (TC) to predict in-hospital mortality (IHM) and disease severity, relationship between their levels and SCAP outcomes, complications, need for invasive mechanical ventilation (IMV) and vasopressor support (VS). **Methods:** 20 ICU patients with SCAP CURB-65 class 3-5 were enrolled to the study. Control group included 16 comparable healthy volunteers. X-ray examination, CRP, IL-2, IFN- γ , fT3, fT4, TSH, TC measurement were performed within the first 24 hours after admission. Exclusion criteria from the study were comorbid diseases that could affect the biomarkers specified. **Results:** Increasing CAP severity was associated with enhanced CRP ($r=0,8$; $p=0,00004$), IL-2 ($r=0,64$; $p=0,031$), TC ($r=0,87$; $p=0,01$) and decreased fT3 ($r=-0,75$; $p=0,0007$) values. Non-survivors revealed higher CRP, IL-2, TC and lower fT3, TSH levels compared with those in survivors [median: 311 vs 241 mg/ml, $p=0,006$], [138 vs 0,8 pg/ml, $p=0,03$], [1377 vs 865 nmol/l, $p=0,03$], [2,8 vs 4,6 pmol/l, $p=0,008$], [0,89 vs 2,6 mMU/l, $p=0,03$] respectively. Necrotising pneumonia (NP) developed in patients with decreased IL-2, fT4 values ($r=-0,6$; $p=0,04$ and $r=-0,48$; $p=0,03$ respectively). Complication by pleural effusion (PE) was related to enhanced IFN- γ levels ($r=0,8$; $p=0,01$). Adverse X-ray dynamics was associated with increased CRP levels ($r=0,55$; $p=0,045$). The values of IL-2, CRP, TC were higher in patients requiring VS [122,7 vs 19,5 pg/ml, $p=0,04$], [311,3 vs 232,8 mg/ml, $p=0,0007$], [1377 vs 865 nmol/l, $p=0,03$]. Enhanced CRP, low fT3 levels were associated with IMV requirement ($r=0,63$; $p=0,003$ and $r=-0,71$; $p=0,001$). Duration of ICU stay correlated with TC and CRP values ($r=0,89$; $p=0,01$ and $r=0,43$; $p=0,04$ respectively), length of in-hospital stay - with TSH and fT4 values ($r=0,56$; $p=0,01$ and $r=-0,44$; $p=0,05$ respectively). **Conclusions:** Serum biomarkers - CRP, thyroid hormone, TC, ATCH, IL-2, IFN- γ can augment early prognostic assessment of SCAP patients.