and ROCFβ were relatively correlated at time 0. TNFα, IL-10 and IL-27 increased and IFNγ, IL-12, IL-17, ROCFβ and T bet mRNA levels decreased over the initial 24 hours. Subsequent bacteremia (18/121 patients) was associated with a lower TNFα/IL-10 ratio at baseline. Similarly, higher IL-10 and lower T bet mRNA at 24 hours also predicted later bacteremia episodes. Development of pneumonia followed a similar pattern. A multivariate logistic regression model proved highly accurate in predicting infectious complications from mRNA analysis of early blood samples. See Figure 1.

Conclusion Cytokine gene expression patterns indicate an immediate and sustained impairment in Th1, Th17 and innate immunity with concurrent upregulation of the Th2 response following major trauma. The magnitude of this response predicts subsequent infectious complications.

References

P28
A cohort study of routinely used sepsis biomarkers and 28-day mortality
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Introduction The evaluation of sepsis severity is complicated by the highly variable and non-specific nature of clinical signs and symptoms. We studied routinely used biomarkers together with clinical parameters to compare their prognostic value for severe sepsis and evaluate their usefulness.

Methods A cohort study of 150 patients ≥18 years with severe sepsis according to the Surviving Sepsis Campaign, in an ICU of a university hospital. Clinical parameters and coagulation, infection and inflammation parameters during the first 24 hours from sepsis or septic shock onset were studied. Descriptive and comparative statistical analysis was performed using SPSS version 15.0 (SPSS Inc., Chicago, IL, USA).

Results We analyzed 150 consecutive episodes of severe sepsis (16%) or septic shock (84%) in the ICU. The median age of the patients was 64 (interquartile range, 46.8 to 77) years; the main sources of infection were intra-abdominal (45%) and respiratory (38%). 71.7% had medical diseases. The 28-day mortality was 22.7%. The profile of death patients were men (64.7%, n = 22), with significantly higher age (63 vs. 57 years; P = 0.049), as well as clinical severity scores, APACHE II 29.8 vs. 24.1; P < 0.001) and SOFA (12.1 vs. 9; P < 0.001) and major dysfunction organ number (4.6 vs. 3.6; P < 0.001). Bilirubin was the best predictor of 28-day mortality with the largest AUC (0.71), followed by hemoglobin (0.65) and CRP (0.67). The multivariate logistic regression was adjusted for three risk parameters, hemoglobin (OR: 0.68, 95% CI: 0.61 to 0.94), bilirubin (OR:1.61; 95% CI: 1.08 to 2.45) and white blood cells (OR:1.04; 95% CI: 1.01 to 1.06) and with these parameters a ROC analysis was performed, giving an AUROC of 0.71 (0.69 to 0.84).

Conclusion The assessment of routine biomarkers (bilirubin, white blood cells and hemoglobin) may be a helpful tool in the decision-making process at the bedside, for the evaluation of early ICU admission of recoverable patients, as indicators of inflammatory response, organ dysfunction or catabolism level, and their significant predictive value on mortality.

Reference

P29
Prolactin as prognostic marker of mortality
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Introduction We analyze prolactin (PCT) as a prognostic marker, in order to assess the clinical impact of a daily PCT measure.

Methods From November 2010 to November 2011 we collected clinical data, drug administration, scores and PCT values of 420 consecutive patients during hospitalization. Statistical analysis was made using SPSS software. We calculated ICU mortality, 1-month mortality and 1-year mortality. Median percentage daily variation was calculated as: (PCT day after – PCT of the date value) / PCT of the date value x 100. PCT variation in the last 48 hours of hospitalization was calculated as: (PCT at discharge – PCT at 48 hours before discharge) / PCT 48 hours before discharge x 100. We compared peak values in dead patients versus alive patients. A logistic regression was performed in order to assess mortality odds ratio.

Results Of the 420 patients, 63 (15%) died in the ICU 12 (2.8%) died 1 month after ICU discharge and 16 (3.8%) died 1 year after ICU discharge. PCT values were higher during the last day of hospitalization in dead patients versus alive patients. PCT percentage variation during the last 48 hours of hospitalization had a slower trend in patients who died than in those who survived; these differences are even more marked in patients who had a septic event. A slower descending trend of daily PCT values was found in patients who died than in those who survived; PCT peak values during the ICU stay were higher in dead patients with respect to alive ones. At logistic regression analysis PCT decrease in the last 48 hours < -30% (OR 3.71), PCT peak higher than 16 ng/ml (OR 2.38), and PCT last day/PCT peak ratio <50% (OR 2.64) were ICU mortality risk factors. PCT values were a higher predictive ICU mortality risk factor than SOFA and APACHE II scores. Other prognostic factors were age and lactate values. Only age was a risk factor in 1-month and 1-year mortality.

Conclusion PCT is a good prognostic marker and is strongly correlated to the clinical status and severity of the patients, so PCT seems to be a useful marker in an intensive care scenario.

References

P30
Changes in circulating procalcitonin versus C-reactive protein in predicting evolution of infectious disease in febrile, critically ill patients
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Introduction Although absolute values for C-reactive protein (CRP) and procalcitonin (PCT) are well-known to predict sepsis in the critically ill, it remains unclear if and how changes in CRP and PCT predict evolution of infectious disease and how they compare in this respect.

Methods In 72 critically ill patients with new-onset fever, CRP and PCT were measured on day 1, 2 and 4 after inclusion, and their clinical course was documented over 1 week with follow-up to day 28. Infection was microbiologically defined, as was bloodstream infection; septic shock was defined as infection plus shock.

Results From peak at day 0 to 2 to day 7, CRP decreases most when (bloodstream) infection and septic shock (day 0 to 2) resolve and increases most when complications such as a new (bloodstream) infection or septic shock (day 3 to 7) supervene (area under the receiver operating characteristic curve 0.70 or higher, P = 0.64 or lower). PCT decreases most when septic shock resolves (AUC 0.72; P = 0.067) and increases most when a new bloodstream infection or septic shock supervenes (AUC 0.62 or higher, P < 0.001). The day 7 value of PCT rather than of CRP was predictive for 28-day outcome (AUC 0.70; P = 0.005).

Conclusion The data, obtained during ICU-acquired fever and infections, suggest that CRP and PCT changes predict the course of infectious disease and its complications. CRP may be favored over PCT courses in decisions on appropriateness and duration of antibiotic treatment, whereas PCT rather than CRP courses may help predict complications such as bloodstream infection, septic shock and mortality.