Identification of novel biomarkers in critically ill patients

Propositions accompanying this doctoral dissertation

Identification of novel biomarkers in critically ill patients

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1. Multiple organ dysfunction, the key characteristic of critically ill patients, is a result of a broad spectrum of severe medical conditions, such as acute and chronic cardiac, respiratory and hepatic disorders, infections, bleedings or trauma. *(this thesis)*

2. Individualized or personalized intensive care medicine is based on stratification of patients in different subgroups, for example in terms of diagnostication and prognostication, which can be achieved by the availability of specific biomarkers. *(Van den Berghe et al. 2019. Cell Death & Differentiation)*

3. A biomarker describes a measurable indicator of a patient's clinical condition that can be measured accurately and reproducibly. *(Barichello et al. 2022. Critical Care)*

4. High calprotectin concentrations at ICU admission and the increase during ICU treatment predict long-term mortality risk. *(this thesis)*

5. M30 levels are correlated to disease severity, organ failure and short-term mortality at the ICU, independent of the presence of sepsis. Hepatocyte apoptosis might contribute substantially to high circulating M30 in critically ill patients. *(this thesis)*

6. Visfatin is a prognostic biomarker in ICU patients and linked to the pathogenesis of excessive systemic inflammation, supporting further research on visfatin as a therapeutic target. *(this thesis)*

7. Members of the adipokine family of C1q/TNF-like proteins (CTRP1 and CTRP3) are integrated in the tightly regulated and complex network of adipose tissue-derived endocrine mediators and systemic inflammation during critical illness. *(this thesis)*

8. Copeptin plasma concentrations are significantly elevated in critically ill patients, correlate with disease severity and predict ICU and long-term outcome. *(this thesis)*

9. Increased MR-proANP plasma concentrations indicate organ dysfunction, sepsis, disease severity and mortality risk. *(this thesis)*

10. This is the reality of intensive care: at any point, we are as apt to harm as we are to heal. *(Atul Gawande)*