

POSTER PRESENTATION

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Adrenomedullin in plasma of surgical ICU-patients with sepsis - a pilot study

T-P Simon^{1*}, S Doemming¹, A Humbs¹, L Martin¹, C Bruells¹, O Hartmann², J Struck², A Bergmann², G Marx¹, T Schuerholz¹

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Introduction

Synthesis and liberation of adrenomedullin (ADM) are found in different tissues and endothelial cells and ADM is induced by hypoxia, oxidative stress, and pro-inflammatory cytokines [1]. The prognostic value of ADM is described in general patient populations, in medical patients and in particular recently in patients with suspected sepsis in the emergency department [2,3]. In surgical patients, the obstacle is to differentiate between postoperative inflammation and sepsis and to assess the patients' prognosis.

Objectives

To evaluate the value of measuring ADM in surgical ICU-patients with sepsis, severe sepsis or septic shock.

Methods

In a prospective, observational clinical trial, we included 42 consecutive ICU patients after major surgery with clinical signs of sepsis according to the ACCP/SCCM definitions and 14 patients admitted routinely to the ICU after major surgery. Plasma samples to determine ADM were drawn within 16 hours after diagnosis of sepsis or routine admission. Laboratory and clinical parameters and 28-day and 90-day mortality were recorded. Values are expressed as median and interquartile ranges (IQR), or counts and percentages as appropriate. Group comparisons of continuous variables were performed using Kruskal-Wallis test. Biomarker data were log-transformed. Spearman rank-order correlation was applied to continuous variables. A p-value of < 0.05 was considered significant.

Results

Patients (66% male) were 70 (IQR 60.5-77) years old and had a body mass index of 26.2 (IQR 24.2-29.4) kg/m². Lengths of stay (LOS) in ICU was 3 (IQR 1-12) days and in hospital 16.5 (IQR 8-21) days. Of the 42 consecutive ICU patients, eight patients had sepsis, 19 developed severe sepsis and 15 suffered from septic shock. ADM increased with severity ($p < 0.0001$, table 1).

Adrenomedullin (ADM) levels in control, sepsis, severe sepsis and septic shock patients ($p < 0.0001$). Post-hoc comparisons show significant differences between controls and severe sepsis/septic shock, as well as sepsis and severe sepsis/septic shock.

Higher ADM concentrations were associated with poor 90 day outcome ($p = 0.019$, figure 1) and more frequent vasopressor usage ($p = 0.001$, figure 2)

Conclusions

Adrenomedullin levels are increased according to the severity of sepsis in surgical ICU patients. Higher levels of adrenomedullin predict the need of vasopressor and survival. Thus, adrenomedullin may be a useful additional parameter in surgical patients with suspected sepsis.

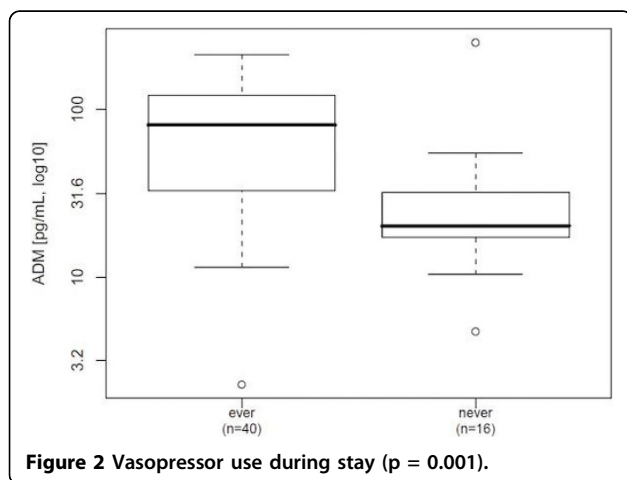
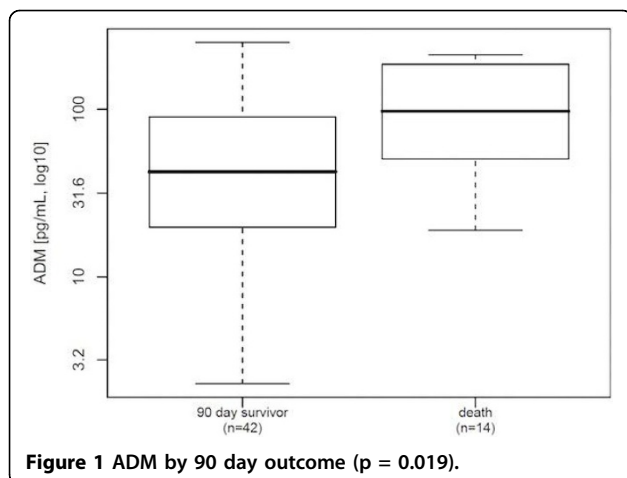
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Table 1 ADM concentrations in all groups

Subgroup	n	Median (pg/mL)	IQR (pg/mL)
Control	14	16.2	11.8 - 20.0
Sepsis	8	25.8	20.3 - 40.2
Severe sepsis	19	84.2	42.7 - 118.5
Septic shock	15	119.7	83.8 - 172.6

¹University Hospital RWTH Aachen, Department of Intensive Care and Intermediate Care, Aachen, Germany
Full list of author information is available at the end of the article



Authors' details

¹University Hospital RWTH Aachen, Department of Intensive Care and Intermediate Care, Aachen, Germany. ²Sphingotec GmbH, Hennigsdorf, Germany.

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