Intensive Care Medicine Experimental
a SpringerOpen Journal

POSTER PRESENTATION Open Access

0082. Early circulating lipid and cytokine profiles prognosticate in a rat model of faecal peritonitis

W Khaliq*, M Singer

From ESICM LIVES 2014
Barcelona, Spain. 27 September - 1 October 2014

Introduction

In stress states, catecholamines induce lipolysis and insulin resistance with hyperglycaemia. Lipid profiles differ between surviving and non-surviving septic patients [1,2] but, hitherto, little attention has been paid to this finding and its significance remains unknown. We used a previously characterized 72h fluid-resuscitated rat model of faecal peritonitis where prognostication can be made with high sensitivity and specificity as early as 6h from heart rate or stroke volume [3].

Objectives

To determine the relationship between early changes in plasma cytokine and metabolic profiles, and their prognostic significance.

Methods

Under general anaesthesia male Wistar rats (325±15g) underwent tunneled insertion of carotid arterial and jugular venous lines, followed by i.p. injection of 4μl/g faecal slurry. They were then woken and attached to a swivel-tether system allowing free movement in their cage with, from 2h, fluid resuscitation (1:1 mix of 5% dextrose:Hartmann's) at 10ml/kg/h. An echocardiography-measured HR cut-off of 460 bpm was used to classify animals into predicted survivors or non-survivors. At 6h, animals were sacrificed for blood and tissue sampling. We here report plasma levels of IL-6, IL-10, and a metabolic profile using blood gas analysis, ELISA and enzymatic colorometric testing.

Results

At 6h the animals manifested only mild clinical features of illness, however significant differences were seen in IL-6 and all lipid measurements between predicted survivors and non-survivors. Glucose, lactate and IL-10 levels did not differ. Table 1

Conclusions

In this long-term rat model of faecal peritonitis, predicted non-survivors had a significantly different IL-6 and lipid profile as early as 6 hours after sepsis. IL-6 impacts on

Table 1

	Predicted survival (n=6)	Predicted non-survival (n=6)
IL-6 (ng/mL)	0.94 ± 0.23	3.70 ± 0.83*
IL-10 (ng/mL)	0.33 ± 0.05	0.30 ± 0.12
Glucose (mmol/L)	6.8 ± 0.7	6.9 ± 0.6
Lactate (mmol/L)	1.9 ± 0.5	1.6 ± 0.5
HDL cholesterol (mmol/L)	0.88 ± 0.04	0.73 ± 0.07*
LDL/VLDL cholesterol (mmol/L)	0.50 ± 0.03	0.39 ± 0.03*
Triglyceride (mmol/L)	1.12 ± 0.04	0.75 ± 0.08*

*[Data shown as median ± SE; * p<0.05]*

Bloomsbury Institute of Intensive Care Medicine, University College London, London, UK

lipid metabolism [4] but the relationship in sepsis has not, to our knowledge, been previously described. The impact of early hypolipidaemia on outcome warrants further investigation.

Grant acknowledgment
UK Intensive Care Foundation and NIHR

Published: 26 September 2014

References

1. Barlage S, *et al*: **Changes in HDL-associated apolipoproteins relate to mortality in human sepsis and correlate to monocyte and platelet activation.** *Intensive Care Med* 2009, **35**:1877-1885.
2. Cappi SB, *et al*: **Dyslipidemia: a prospective controlled randomized trial of intensive glycemic control in sepsis.** *Intensive Care Med* 2012, **38**:634-641.
3. Rudiger A, *et al*: **Early functional and transcriptomic changes in the myocardium predict outcome in a long-term rat model of sepsis.** *Clin Sci* 2013, **124**:391-401.
4. Glund S, Krook A: **.** *Acta Physiol (Oxf).* 2008, **192(1)**:37-48.

doi:10.1186/2197-425X-2-S1-P2
Cite this article as: Khaliq and Singer: 0082. Early circulating lipid and cytokine profiles prognosticate in a rat model of faecal peritonitis. *Intensive Care Medicine Experimental* 2014 **2**(Suppl 1):P2.