episodes (34,6%) was digestive septic focus, following 13 cases of post-surgical abdominal intervention (25%). Main reason of PCD was 11 cases of pulmonary empiema (21.%), following 9 cases of infected intraabdominal collections (17.35%) and pionefrosis in 8 cases (15.4%). In 46 cases (88%) the PCD was performed under ultrasound guidance. PCD was performed 1 day mean after ICU admission (0–5.75), it was maintained 4 days mean (2–13.75).
No complications related to PCD were observed in most episodes (44 cases, 85%). The most frequent complications were drainage obstruction in 5 cases (9.4%), and local bleeding in 2 episodes (3.4%), none of them related with decease.
Subsequent surgical intervention after PCD was required only in 8 cases (15.4% of patients). ICU mortality was 13.5% (7 cases) and in-hospital 19.2% (10 cases).
CONCLUSIONS. PCD can be a useful and safe tool for evacuation of collections in ICU patients. Prospective studies are needed to quantify surgical intervention reduction in these high-risk patients.
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Early and sustained normalization of hyper-inflammatory response is associated with improved survival after a single dose administration of Reltecimod (AB103), a CD28 peptide antagonist, in a mice model of polymicrobial sepsis

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INTRODUCTION. Co-stimulatory pathways provide crucial checkpoints for the host response to infection. Among them, CD28 receptor delivers signals essential for T cell proliferation, survival, cytokine production, and T-helper type-II development. Reltecimod, a CD28 antagonist short peptide, currently in phase 3 clinical study in NSTI, improves the host's ability to effectively fight the infection.
A single dose of Reltecimod confer higher survival rate compared to multiple doses.
OBJECTIVES. Compare the effect of a single dose vs. two doses on survival, circulating white blood cells profile and cytokine/chemokines levels, in animals undergoing sepsis induced by Cecal Ligation and Puncture (CLP).
METHODS. Sepsis was induced by CLP in BALB/c mice. PBS or Reltecimod (5 mg/kg) were administered intravenously, once or twice, at 2 hours or 2 and 24 hours post-CLP to randomized animal groups. Animals were euthanized at either 24 or 48 hours (h) after CLP. Blood was collected for measurements of various cytokines/chemokines (IL-6, IL-3, IFN-γ, IL-1a, IL-12, IL-17, IL-10, IL-5, MCP-1, MIP-1α, RANTES) and lymphocytes profile (T cells [CD4+; CD8+], B cells, neutrophils, macrophages/monocytes) determined using flow cytometry. Effect of a single dose was compared to control (PBS) or to two doses. Separate groups, treated similarly, were used for survival assessments.
RESULTS. Mice treated with a single dose of Reltecimod at 2h showed significant improvement in survival (90%) on day 6, compared to a control group (5%; $p < 0.002$) or to a group treated with two doses (at 2 and 24h) of Reltecimod (40%; $p < 0.002$). Average survival time was 2.9, 6.9 and 5.0 days, for control, a single dose or two doses of Reltecimod, respectively. In the control group at 24h post-CLP, levels of multiple pro-inflammatory cytokines/chemokines were elevated, increase in T cells subpopulation (CD4+; CD8+) and decrease in neutrophils were observed. Without treatment, these early changes normalized by 48h. Single dose of Reltecimod significantly reduced various cytokines/chemokines levels (mean and AUC) at 24h, which were positively correlated with (i) one another (ii) reduction in T cells subpopulations (number, %, AUC) and negatively correlated with neutrophils count (number, %), all compared to control. However, no further reduction at 48h post-CLP was detected in cytokine/chemokines or lymphocytes sub-populations when additional dose of Reltecimod was administered at 24h. These animals experienced longer exposure (>24 hours) to high cytokines/chemokines, without complete resolution of lymphocyte profile.
CONCLUSIONS. Improved mortality of mice following CLP and treatment with Reltecimod is associated with reduced exposure to cytokines during the early time period after infection and early and sustained normalization of lymphocytes profile. Both processes are enhanced when animals are treated with a single dose of Reltecimod, whereas a second dose has less favorable outcome.

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Intravenous beta-hydroxybutyrate has no impact in a long-term rat model of sepsis

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INTRODUCTION. A metabolic shift towards lipid use occurs during critical illness. This may represent an evolutionary conserved response to utilize body fat stores as a energy substrate. Ketone bodies, often regarded as a by-product of fatty acid beta-oxidation, are emerging as important metabolic regulators. Ketogenic diets are being used therapeutically in various diseases.
OBJECTIVES. To assess the impact of exogenous administration of the ketone, beta-hydroxybutyrate (BHB), on metabolism and cardio-respiratory function in a long-term rat model of fluid-resuscitated faecal peritonitis.
METHODS. Instrumented male Wistar rats had sepsis induced by intraperitoneal injection of faecal slurry. Sham-operated animals received no injection. Animals were then placed in metabolic cages for indirect calorimetric measurement of O_2 consumption and CO_2 production. They had free access to food and water. Fluid resuscitation with a balanced solution was started at 2h. At 6h animals were randomized to receive iv BHB infusion (180mg/kg/h) or an equivalent isocaloric volume of glucose solution. At 24h, blood and tissue samples were collected and animals euthanized.
RESULTS. At 24h BHB-treated animals had a metabolic alkalosis (7.53 ± 0.04 vs 7.49 ± 0.03 untreated; $p = 0.001$) with increased bicarbonate (33.4 ± 2.5 vs 28.2 ± 3.2 mEq/L; $p < 0.001$) and base excess (10.8 ± 3.2 vs 4.5 ± 3.9 mmol/L; $p < 0.001$), yet $PaCO_2$ levels were unchanged. BHB had no effect on respiratory exchange ratio (RER = CO_2 production/O_2 consumption) in sham-operated animals (0.85 ± 0.05 vs 0.89 ± 0.03 in placebo; $p = 0.169$). However, the septic animals, regardless of BHB treatment, had similarly reduced RER values at 24h (0.80 ± 0.03 vs 0.78 ± 0.01 untreated, p = ns; $p < 0.001$ compared to sham). O_2 consumption was unchanged at 24h, whereas CO_2 production was reduced in the septic groups (1245 ± 146 mL/kg/h vs 1441 ± 171 mL/kg/h sham; $p = 0.003$). Compared to placebo, BHB infusion in septic animals produced no significant changes in clinical severity score, temperature, blood pressure or cardiac function.
CONCLUSIONS. Sepsis produced a shift towards fat oxidation signified by a fall in RER. BHB infused over 18 hours resulted in a metabolic alkalosis but no effect on illness severity, haemodynamics or RER. No positive impact was seen with a ketogenic diet in this animal model of sepsis.