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P001

Prognostic value of a genetic polymorphism of AQP5 in sepsis depends on a source of infection

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Introduction: The purpose of the study was to determine whether the preferential localization of the infection and age affect the prognostic value of the genetic marker AQP5 (1364A/C, rs3759129) in outcome prediction in sepsis patients. Studies by Adamzik and colleagues have demonstrated that aquaporin AQP5 polymorphism (1364A/C, rs3759129) associates with increased 30-day survival in sepsis patients presumably due to increased gene expression that enhance the leukocyte migration. To increase the informative value of the prediction and decrease the cost, it might be crucial to determine at a pre-test level the subset of patients who might benefit most from the prognostic genotyping.
Methods: Sepsis and septic shock were defined in patients according to SEPSIS-3 (2016) recommendations. Study groups (n=152) included ICU patients with abdominal sepsis (AS, including pancreatitits, peritonitis, cholecystitis, appendicitis; n=98) and sepsis patients with other sources of infections. AQP5 polymorphism was studied by analyzing PCR products in a 2% agarose gel using a AQP5 1364A/C specific tetra primer set. Data were analyzed by Kaplan-Meyer plot and Fisher test, and odds ratios were calculated.
Results: Distribution of alleles (A and C) and genotypes (AA, CA and CC) AQP5 1364A/C in patients with sepsis or sepsis subgroups (sepsis with no septic shock and sepsis shock patients) versus control group (healthy volunteers) did not differ. Although there was a trend to preferential survival of sepsis patients with genotype C AQP5 despite the source of infection, only patients with AQP5 CC or CA genotype and abdominal sepsis (Sepsis-3), or a subgroup of the same AQP5 genotype experiencing septic shock, demonstrated increased 30-day survival versus AA homozygotic patients (P<0.002).
Conclusions: The informative value of detecting the AQP5 CC or CA genotype for prognosis of 30-day survival versus AA homozygotic patients is increased only in abdominal sepsis patients.

P002

Depressed expression of FCER1A gene is associated with increased mortality in infected surgical patients

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Introduction: Increasing evidence supports a central role for "immunosuppression" in sepsis. It is necessary to develop biomarkers of immune dysfunction that could help to identify patients at risk of poor outcomes [1]. The decreased expression of human leucocyte antigen (HLA)-DRA is proposed as a major feature of immunodepression and its persistent decrease is associated with mortality in sepsis [2]. In a previous study, we evidenced that FCER1A (Fc Fragment Of IgE Receptor Ia) is the gene showing the lowest expression levels of the entire transcriptome in sepsis [3]. Here we studied the association between FCER1A expression and mortality in infected surgical patients.
Methods: FCER1A and HLA-DRA expression levels were quantified by droplet digital PCR in blood of 257 infected surgical patients. 26 patients died within 28 days (10.11%). Spearman test was used to evaluate the association between gene expression and the Sequential Organ Failure Assessment (SOFA) score. Areas under Receiver Operating Curves (AUROC) were used to determine the gene expression cut-off values predicting mortality. Kaplan-Meier survival curves were obtained and differences in survival between groups were evaluated using the Log rank test. Cox regression was employed to assess mortality risk at 28 days.
Results: Gene expression levels of FCER1A and HLA-DRA correlated inversely with patients' severity (r: -0.5 p<0.001; r: -0.3, p<0.001 respectively). Both genes showed significant AUROCs to predict survival, but FCER1A showed the best accuracy (Fig. 1). Patients with

12% which takes the third place between CPB-associated complications . Current data demonstrates the importance of researching of changes in haemostatic system in paediatric patiens after CPB. Provided below data is an intermediate result of our research.
Methods: 39 patients in age up to 11 mohth 29 days (median age – 5,5 months, youngest age – 2 days after birth, oldest – 11 months 29 days), who underwent cardiac surgery with CPB to treat congenital heart diseases, were enrolled in this study. All patients were divided into two groups: 1st – without TC, 2nd – with TC. Protein C (PC) and fibrin-monomer (FM) plasma levels were assessed in there points: before surgery, 24-hours and 72 hours after surgery. Thrombotic cases were provided by Doppler ultrasound or MRI.
Results: Thrombotic complications were diagnosed in 7 chidren (18%). Between all TC ischemic strokes were diagnosed in 57% (4 cases), arterial thrombosis in 29% (2 cases), intracardiac thrombus in 14 % (1 cases). In group with TC FM-mean values in points 1,2 and 3 respectively were 9.62; 37 and 108 mcg/ml, meamwhile in group without thrombosis – 7.5; 36.04 and 9.25 mcg/ml .PC-mean value in 1st group – were 50; 56 and 76%, in the 2nd group – 49; 52 and 39% respectively in the points 1, 2 and 3. Statistically significant differences between groups in 3rd point ($p<0.05$) and correlation between PC and FM ($r=-0.93$; $p<0.05$) were detected.
Conclusions: CPB causes hypercoagulation with increasing of PC consumtion and FM level. Moreover, CP associated with a high risk of TC on the 3rd day after cardiac surgery. Further studies to investigate prognostic values of FM and PC in thrombosis are required. These studies would help to asses FM and PC as markers of TC and possibility of PC-prescribing for prevention and treatment of these complications.

P336

Sepsis-associated coagulopathy and the association of platelet count with mortality

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Introduction: Thrombocytopenia is a common condition in critically ill patients and an independent predictor of mortality. The relevance of a supranormal platelet count remains unclear. Septic patients with Disseminated Intravascular Coagulation (DIC) are also known to have a high mortality, but the influence of sepsis on mortality rates in coagulopathic patients is less well characterised. Our objectives were to:

1) Evaluate mortality amongst patients with sepsis and non-sepsis associated DIC.
2) Assess incidence of DIC during the first 7 days of admission.
3) Assess the relationship between platelet count and mortality.

Methods: Records of 935 adult critical care patients admitted to the Royal Liverpool University Hospital between 2008-2014 were retrospectively reviewed. The presence of sepsis (using the definition of SIRS with infection), coagulopathy, degree of thrombocytopenia and 28 day mortality were noted. Modified ISTH DIC score was used to define DIC.
Results: The overall mortality rate was 19%. 522 patients were identified as having sepsis (56%) and 413 non septic patients (44%). Mortality rates of patients with sepsis were significantly higher than without sepsis (71% vs 29% respectively, $p<0.0001$). In patients with DIC, their DIC scores tended to be 'positive' for the first 4 days of admission. Fibrin-related markers were often not available for DIC scoring. Mortality rates amongst patients with sepsis-associated DIC were greater than patients with non-sepsis related DIC. Thrombocytopenia severity was associated with mortality, and patients with platelets above the upper limit of normal had lower mortality rates (11% when platelets > 400x10^9/L, 30% when platelets <50x10^9/L).
Conclusions: Sepsis-associated coagulopathy is associated with a higher mortality rate than non-sepsis associated coagulopathy. Supranormal platelet counts may be associated with a mortality benefit.

P337

Comparison of hemostatic potential and analgesia methods of elderly patients who underwent major urological surgery during their stay in ICU

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Introduction: Deep vein thrombosis (DVT) is a major problem in ICU and affects overall lethality. DVT is widespread complication in ICU, especially in elderly patients, when early activisation may not be achieved. Aim of this study is comparison of haemostatic potential and analgesia methods of elderly patients who underwent major urological surgery during their stay in ICU.
Methods: A cross-sectional study was employed. Participants were ≥70 y.o., underwent major urological surgery, have had normal initial hemocoagulation data (thromboelastography was performed to all of them), had received analgesia with epidural catheter or IV by opioids use and were treated in ICU >3 days due to non-coagulopathy states, were included. Data were collected from October 2017 till October 2018. The patients were examined with thromboelastograph "Mednord" for thromboelastogramm (TEG) and with eSaote USG for thrombi occurrence in lower limb deep veins. The anticoagulants were prescribed under the ESA guidelines 2017.
Results: Participants (n=30) were divided in two groups - non-opioid analgesia with epidural catheter (n=12) and opioid analgesia (n=18). We received moderate decrease in anticoagulants dosage to the patients with epidural analgesia with the same TEG goals compared to the patients with opioid analgesia. Other factors as comorbidities may provoke DVT events, but was not evaluated in this study. The DVT events were monitored by expert with the use of USG to locate thrombi in the vein.
Conclusions: Use of epidural catheter analgesia provides moderate decrease of anticoagulants dosage compared to opioid analgesia patients; however strict control of TEG data must be presented. Comorbidity need to be monitored for early detection and prevention of DVT events.

P338

Utility of low- frequency piezoelectric thromboelastography (LPTEG) for comparison of mono- and combined antithrombotic therapy results in patients with morbid obesity

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Introduction: Patients with morbid obesity (MO) have a high risk of thromboembolic events. In patients with a BMI >35, the hypercoagulable state is due to impairment of all parts of the blood coagulation as well as anticoagulation mechanisms by obesity.
Methods: The hemostasis system was studied in 100 patients with a BMI> 35 kg/m2 with various pathologies that were admitted to ICU. All patients were divided into 2 groups depending on the type of therapy: 1 group (n=50) received monotherapy with Enoxaparin sodium 0.1% 0.2 ml SC 2 times a day every 12 h; group 2 (n=50) received combination therapy with Enoxaparin sodium 0.1% 0.2 ml SC 2 times a day every 12 h and Pentoxifylline 100 mg 2 times a day every 12 h. To study the hemostasis system, we used LPTEG immediately after hospitalization, on 1, 3, 5 days.
Results: In both groups, prior to treatment: Contact Coagulation Intensity (ICC) was increased by 23.57%, Intensity of coagulation drive (ICD) - by more than 32.68%, clot maximum density (MA) - by 74.52%, index of retraction and clot lysis (IRCL) - 91.18% above normal. Patients of the 1st group: ICC increased by 12.62%, ICD was close to normal values, MA increased by 18.63%, IRCL was increased by 31.17%. Patients of the 2nd group on the 5th day: ICC decreased by 15.22% compared with the norm; the coagulation and fibrinolysis parameters were close to normal values and the decrease in fibrinolysis activity reaches to normal.
Conclusions: Combined therapy of thromboembolic complications in patients with obesity Sodium Enoxaparin sodium and Pentoxifylline is more effective than Enoxaparin sodium monotherapy because it affects all parts of the hemostatic system.

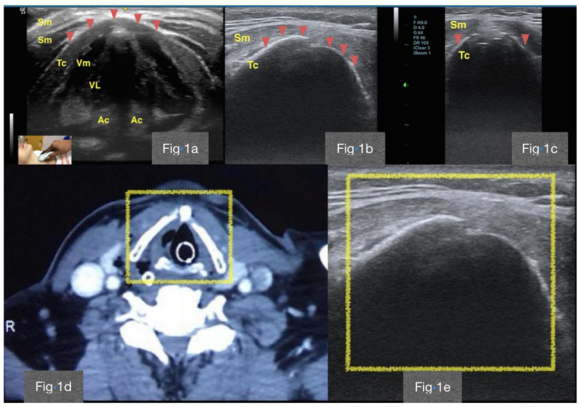

Fig. 1 (abstract P339). Figure 1a: Normal sonoanatomy in transverse scan. Figure 1b: Discontinuity of anterior cortex of thyroid cartilage with surrounding tissue oedema in transverse plane. Figure 1c: POCUS image of tranverse section of airway showing air mucosa disruption with a displaced thyroid cartilage. Sm-sternocleidomastoid muscle; Tc-thyroid cartilage; Vm-vocalis muscle; VL-vocalis ligament; AC- arytenoid cartilage. Figure 1d: A Computerised Tomography (CT) scan image shown defect in posterolateral wall of trachea with fracture of right anterior lamina of thyroid cartilage and superior cornu of left thyroid cartilage. Figure 1e: Figure of POCUS airway of thyroid cartilage in relation to the CT scan image

P339

Role of point-of-care ultrasound (POCUS) airway in blunt neck trauma

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Introduction: A laryngeal injury secondary to blunt neck trauma can lead to life-threatening upper airway obstruction [1,2]. Ultrasound enables us to identify important sonoanatomy of the upper airway [3]. The purpose of this report is to discuss role of POCUS airway in blunt neck trauma and to determine airway management based on standard Schaefer 5 subgroups classification.
Methods: Three cases of blunt neck trauma presented to our centre with either subtle or significant clinical signs and symptoms. Standard airway management was performed prior to POCUS airway using 15MHz linear transducer and it findings were later compared to flexible fibreoptic laryngoscopy and Computed Tomography (CT).
Results: POCUS airway had identified one out of 3 cases to have Schaefer 2 and the remaining as Schaefer 3. All POCUS airway findings were confirmed with flexible fibreoptic laryngoscopy and CT scan (Figs 1, 2). Based on Schaefer, supportive care and early steroid administration are advisable for group 1 and 2. For groups 3 to 5, immediate open surgical repair is deemed necessary due to extension of injuries.All cases were intubated using Glidescope.All including those presented with Schaefer 3 were managed conservatively and discharge well with proper follow-up.
Conclusions: Upper airway ultrasound is a valuable, non-invasive and portable for evaluation of airway management even in anatomy distorted by pathology or trauma. An organised approach using POCUS airway as an adjunct can expedite care and prevent early and long term complications in facilities without flexible laryngoscope and CT.

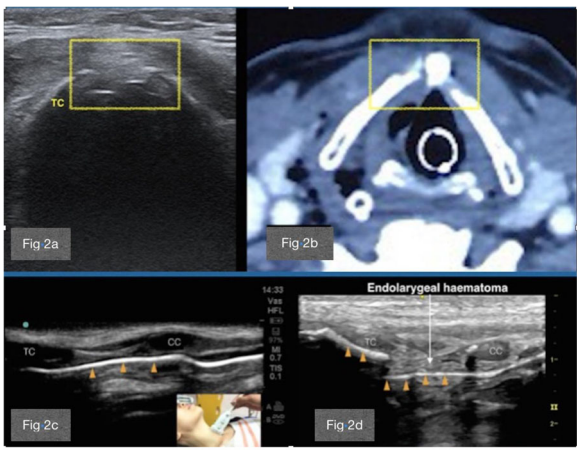

Fig. 2 (abstract P339). Figure 2a: Figure of POCUS airway of displaced thyroid cartilage fracture and disruption of air mucosal. Figure 2b: A Computerised Tomography (CT) scan image shown defect in posterolateral wall of trachea with fracture of right anterior lamina of thyroid cartilage and superior cornu of left thyroid cartilage in relation to the image in POCUS. TC- thyroid cartilage. Figure 2c – Normal sonoanatomy in longitudinal scan showing continuous intact air mucosal as shown by yellow arrowhead. Figure 2d- POCUS airway in longitudinal scan showing disruption of air mucosal interface and displaced thyroid cartilage as shown by yellow arrowhead and formation of endolaryngeal haematoma. TC – thyroid cartilage; CC- cricoid cartilage

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