AN-1305-004
DEXOMEDETOMIDINE USE FOR INTRAVENOUS SEDATION AND DELIRIUM TREATMENT DURING EARLY POSTOPERATIVE PERIOD IN CARDIO-SURGICAL PATIENTS
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Objective of the study: to analyze the efficiency and safety of Dexmedetomidine infusion for a short-term controlled sedation and treatment of delirium in the early postoperative period in patients after cardiac surgery. Methods: open, randomized, prospective study of 28 patients undergoing surgery on the heart or main blood vessels under general anaesthesia. In the early postoperative period all patients received an infusion of Dexmedetomidine (0.2-1.4 .g kg.. per hour) for sedation. The analgesia was carried out with Ketoprofen according to the protocol and Trimeperidine if VAS was . 3. Sedation and agitation levels were measured according to Ramsay and RAAS scales, speed of awaking by Aldrete score. Duration of mechanical ventilation, length of stay in ICU, need for analgesics (VAS scale), type and frequency of side effects and vital signs (Harward standart) were recorded. Type of delirium, time of onset (days after surgery), dose and duration of psychomotor agitation were evaluated in patients with delirium (n=9). Results: Dexmedetomidine infusion in the medium therapeutic doses resulted mild or moderate sedation remaining up to 12 hours after the infusion. More than 50% of patients had retrograde amnesia. The pain intensity did not exceed 1 point on VAS scale in 96% of patients. 23% of patients required an additional administration of Trimeperidine. The most common side effects were bradycardia (39%) and arterial hypotension (36%). The therapy with Dexmedetomidine provided the most optimal level of sedation compared to other combinations of drugs (haloperidol, midazolam, propofol) in patients with delirium according to sedation-agitation and awaking scales. Conclusions: Dexmedetomidine provides dose-dependent sedation and retrograde amnesia without altering the verbal contact, does not cause respiratory depression. The drug has independent analgesic effect and proved to be effective in the treatment of delirium. The most frequent side effects of Dexmedetomidine are bradycardia and arterial hypotension.

Key words: sedation, delirium, dexmedetomidine, cardiac surgery

AN-1305-008
WOUND ADMINISTRATION OF LOCAL ANAESTHETICS AFTER ABDOMINAL HYSTERECTOMY: IS ANOTHER TECHNIQUE OF ANALGESIA NEEDED?
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The efficacy and safety of continuous wound infiltration with Ropivacaine in combination with systemic anaesthesia were assessed in randomized controlled trial in 60 patients after open hysterectomy. In the trial wound administration of Ropivacaine reduced the postoperative consumption of opioids and the intensity of pain syndrome and reduced the frequency of side effects of narcotic analgesics.

Key words: wound infiltration, postoperative pain, local anaesthetics, multimodal analgesia

AN-1305-011
KETOPROPHEN AND NEFOPAM COMBINATION FOR POSTOPERATIVE ANALGESIA WITH MINIMAL USE OF NARCOTIC ANALGESICS IN CARDIO-SURGICAL PATIENTS
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4 combinations of analgesia were studied: 1) Nefopam and patient-controlled analgesia (PCA) with Trimeperidine; 2) Ketoprofen (100 .g each 12 hours intramuscular) and PCA with Trimeperidine; 3) Nefopam, Ketoprofen and PCA with Trimeperidine; 4) PCA with Trimeperidine as monotherapy in early postoperative period in cardio-surgical patients. 80 patients (age from 40 to 70) were divided into 4 groups, 20 patients in each group. Administration of Nefopam and Ketoprofen before extubation reduced the intensity of pain syndrome (in average on 90%) and promoted the early stirring up of patients. Combination of Nefopam and Ketoprofen provided the most expressed analgesic and opioids-saving effects. In this group average amount of Trimeperidine per 24 hours was 14.7 .g that was 4.9 times less than in group of PCA with Trimeperidine as monotherapy. Dynamics of maximal inspiratory capacity of the lungs in the first three groups was better than in group of PCA with Trimeperidine as monotherapy beginning from 6th hour of study. In common undesirable effects was connected with Trimeperidine administration and depended on its dose. The frequency of nausea, vomit, dizziness and weakness was authentically higher in the group of PCA with Trimeperidine as monotherapy than in other groups.

Key words: postoperative pain in cardio-surgical patients, patient-controlled analgesia, nefopam, ketoprofen, trimeperidine
AN-1305-015
ASSESSMENT OF ANAESTHESIA SUFFICIENCY AND STRESS RESPONSE DURING LIVER RESECTIONS
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Recently number of patients undergoing a surgery for primary and secondary liver damages is increased. Thus an adequate and safe anaesthesiological care for the surgeries is a very actual problem. The article deals with a study of anaesthesiological care in 51 patients. 26 patients (51%) received multimodal balanced anaesthesia based on sevoflurane and 25 patients (49%) received multimodal balanced anaesthesia based on continuous propofol infusion. Monitoring of haemodynamics, acid-base balance, common liquid volume, intracellular and extracellular liquid, stress hormones (cortisol and prolactin) was carried out during the surgeries. Haemodynamics and infusion and transfusion therapy were adequate during both methods of anaesthesiological care for liver resections. Strongly marked tissue injury during surgery causes neuroendocrine stress. Cortisol activity during anaesthesia based on continuous propofol infusion was less than during anaesthesia based on sevoflurane. This fact shows that propofol provides stronger protection than sevoflurane. Adequate level of anaesthesia does not cause outoregulative mechanisms suppression which is important during strongly traumatic surgery. Anaesthesia based on sevoflurane both to anaesthesia based on continuous propofol infusion is a method of choice for liver resection.

Key words: stress response, liver resection, total intravenous anaesthesia, inhalation anaesthetics, prolactin, cortisol

AN-1305-020
SIGNIFICANCE OF STATIC PRESSURE-VOLUME LOOP AND LUNG COMPUTED TOMOGRAPHY FOR DIFFERENTIAL DIAGNOSTICS OF PARENCHYMAL LUNG FAILURE
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Purpose of the study was to determine a significance of static pressure-volume loop and lung computed tomography for differential diagnostics of parenchymal lung failure developing during mechanical ventilation. Materials and methods: 75 patients (42 males and 33 females) with acute lung failure due to parenchymal lung injury during mechanical ventilation were included in to the research. Criteria of including into the research were age over 15, ARDS symptoms absence before respiratory support beginning and modified American-European Consensus Conference ARDS criteria presence during mechanical ventilation (AECC ARDS criteria, 1994 — PaO2/FiO2<250 mmHg). Lung computed tomography (CT), static compliance and plateau measurement were performed in all patients. Static pressure-volume loop was plotted in 23 patients. Results: diffuse alveolar damage was diagnosed by CT in 24.3% of patients and “wet sponge” symptom in 10.7% of patients. Dorsal atelectasis (77.3%) and ventilator-associated pneumonia (VAP) (82.7%) were diagnosed in most of patients with AECC ARDS criteria. Sensitivity and specificity of PaO2/FiO2 ratio were too low for diagnostics of ARDS (AUROC 0.67) Patients with diffuse alveolar damage had plateau pressure 25 mbar (95% CI 22-32), while patients with local lung injury (VAP or atelectasis) had significantly lower plateau pressure — 20 mbar (95% CI 18-22) (p=0.014). Elevation of plateau pressure over 30 mbar predicted diffuse alveolar damage with specificity of 100%. Lower inflection point values on the static pressure-volume loop was higher in patients with diffuse alveolar damage than in patients with local lung injury — 12 mbar (95% CI 7-17) vs. 6 mbar (95% CI 5-10), (p=0.042, n=23). Effective (linear) compliance had poor prognostic value for differential diagnostics of acute respiratory failure due to parenchimal lung injury (p=0.023). Conclusion: Lung CT plays leading role in differential diagnostics of parenchymal lung failure developing during mechanical ventilation. In the luck of CT scan elevation of plateau pressure over 30 mbar and values of lower inflection point on the static pressure-volume loop over 12 mbar can predict ARDS.

Key words: mechanical ventilation, acute respiratory distress syndrome, ARDS, VAP, static pressure-volume loop, lung CT scan, lower inflection point, compliance

AN-1305-024
LUNG ARTERY CATHETERIZATION IN PATIENTS WITH BLOOD DISEASE
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Purpose of the study was to analyze complications of the lung artery catheterization in patients with blood disease. Materials and methods: 93 cases of the lung artery catheterization in patients with blood disease were studied in the retrospective research. Results: Indications for lung artery catheterization were septic shock (in 78.5% of cases) and acute respiratory failure with different etiology (in 21.5% of cases). In 31 cases (33.3%) lung artery catheterization was performed in patients with agranulocytosis and in 81 cases...
(87%) in patients with thrombocytopenia (platelets median was 44 109/ L, from 7 109/ L to 7 150 109/ L). If a thrombocytopenia was less than 30 109/ L the patients received transfusion of platelets concentrates. Early complications of the lung artery catheterization occurred in 5 patients with thrombocytopenia (5.4%). Character of the complications was hemorrhagic (haematoma, bleeding from place of puncture, lung bleeding) and mechanical (puncture of artery, pneumothorax, haemothorax). Number of attempts of central veins puncture was a risk factor for the complications. Frequency of catheter associated sepsis was 5.89 cases each 1000 catheter-days. Frequency of soft tissues infection in the area of catheterization was 9.78 cases each 1000 catheter-days. Catheter associated infections occurred in cases when catheter was used more than 5 days. 2 of 3 patients with catheter associated sepsis had agranulocytosis. Other complications included intermittent arrhythmias during catheter moving through heart chambers (58), rupture of catheter container during its use (4), thrombosis of the one lumen of catheter(3). Conclusions: Lung artery catheterization can be used in patients with blood disease and first of all in patients with septic shock and acute respiratory failure. In patients with agranulocytosis less invasive methods of monitoring are more advisable.

Key words: lung artery catheter, thrombocytopenia, agranulocytosis, catheter associated sepsis, blood disease

AN-1305-030
RECENT ADVANCES OF MONITORING AND GLYCAEMIA CONTROL DURING EARLY POSTOPERATIVE PERIOD IN PATIENTS AFTER PANCREAS SURGERY
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Recently new technologies of diagnostics and correction of carbohydrates metabolism disturbances are introduced in the ICU to improve the safety for patients during intensive care. 33 patients after pancreas surgery were included into the study. 13 patients (39%) had underlying diabetes mellitus. Glucose level changes in the interstitial liquid of the subcutaneous fat during postoperative period were monitored by system of CGM Medtronic MiniMed Guardian RT, MiniMed Paradigm Real-time. Valid values of glucose were from 4.1 to 10.1 mmol/L. Episodes of glucose level increasing occurred in 94% of patients in postoperative period after pancreas surgery. Average level of glucose was within the limits of valid values. However in 64% of cases patients needed insulin therapy. Used systems of continuous glucose monitoring in the ICU allow improving the safety for patients receiving artificial nutrition and intravenous insulin therapy.

Key words: carbohydrates metabolism disturbances, systems of continuous glucose monitoring, intravenous insulin therapy

AN-1305-034
ETIOPATHOGENETIC EXTRACORPOREAL TREATMENT OF SEVERE SEPSIS IN PATIENTS AFTER CARDIAC SURGERY
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The study deals with assessment of LPS-adsorption and haemodialysis with EMiC2-filters use in the complex treatment in cardio-surgery patients with heavy sepsis. 64 adult patients included in the study were divided into two groups. 26 patients of the main group with heavy sepsis (EEA>0.6; procalcitonin level higher than 2 ng / ml) received LPS-adsorption and haemodialysis with EMiC2-filters. 38 patients of control group with heavy sepsis developed after surgeries on heart and vessels did not receive extracorporeal methods of treatment. Positive effect of combined extracorporeal treatment on haemodynamics, oxygenation, endotoxin activity decreasing, procalcitonin level, inflammatory and antiphlogistic cytokines level was identified. Trend of 28-day survival increasing was indentified in the main group.

Key words: sepsis, endotoxin, LPS-adsorption, haemodialysis, EMiC2-filters, cardiac surgery

AN-1305-042
PREDICTION OF INTRA-ABDOMINAL HYPERTENSION RISK IN PATIENTS WITH COLONIC OBSTRUCTION UNDER EPIDURAL ANALGÉSIA
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Purpose of the study was to identify prediction possibility of direct current potential level for intra-abdominal hypertension risk in patients with acute colonic obstruction under preoperative epidural analgesia. Materials and methods: Prospective analysis of the preoperative period was carried out in 140 patients with acute colonic obstruction caused by colon cancer. Results: Relations between preoperative level of permanent...
capacity and risk of intra-abdominal hypertension was identified. Direct current potential level is an independent predictor of intra-abdominal hypertension. Diagnostic significance increases from first to fifth hour of preoperative period according to AUROC data from 0.821 to 0.905 and calibration 6.9 (p>0.37) and 4.7 (p>0.54) by Hosmer-Lemeshou criteria. The use of epidural analgesia in the complex intensive preoperative preparation is pathogenically justified. It reduces intra-abdominal hypertension in patients with acute colonic obstruction.

Key words: intra-abdominal hypertension syndrome, acute colonic obstruction, the level of permanent capacity, epidural analgesia

AN-1305-047
MODIFIED SOFA PROGNOSTIC SCORE FOR SURGICAL PATIENTS IN INTENSIVE CARE UNIT
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Prospective observational study was conducted to determine predictors of the survival and to construct a prognostic scoring system for critical surgical patients. Predictors of the mortality were low abdominal perfusion pressure, positive fluid balance, lock of bowel movements, high values of APACHE II and failed enteral nutrition. Optimal combination of the predictors was determined by analysis of receiver operating characteristics curves (ROC curves). The combination of IAP, fluid balance and SOFA score had maximal AUC. The combination was called ifSOFA score. Its AUC was 0.915. ifSOFA=5 was the best cut off value.

Key words: predictors of survival, surgical intensive care unit, APACHE II, SOFA score

AN-1305-051
USE OF VENOVENOUS EXTRACORPOREAL MEMBRANE OXYGENATION IN 1 YEAR 2 MONTHS OLD PATIENT WITH ARDS AND PNEUMONIA
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Extracorporeal life support (ECLS) is used in pediatric patients with ARDS in recent 20 years with survival rate from 50 to 67 %. Venovenous ECLS was used in 1 year 2 months old patient with ARDS and pneumonia developed in postoperative period after gastric esophagoplasty. Purposes of ECLS use were stabilization child’s condition and normalization of gas composition of blood with relative lungs repose. Indications for ECLS were increasing respiratory failure, hypoxemia, low respiratory index (PaO2/FiO2 ratio 47.3), alveolar-arterial gradient of oxygen (A-aDO2) 630 mmHg and absence of positive effect from high frequency oscillation (HFO). Materials and methods: ECLS was used in 1 year 2 months old patient with ARDS and bilateral pneumonia developed in postoperative period after gastric esophagoplasty. Deltasteam system (Medos Medizintechnik AG, Germany) with centrifugal pump and servoregulation of blood flow pressure was used for ECLS. Double-lumen cannula with size12 French was used. ECLS was instituted via right internal jugular vein. Results: The patient did not have expressed heart failure. Thus preference was given to venovenous ECLS and not to venoarterial ECLS. Duration of ECLS use was 72 hours. Auscultation parameters and gas exchange improved, haemodynamics stabilized, parameters of biochemical and haematological analysis normalized and the dynamics x-ray examination was positive after the ECLS use. Patient was decannulated and extubated. Conclusions: Venovenous ECLS was an only way of life support in child with heavy ARDS and pneumonia developed in postoperative period. More observations are needed for more thorough analysis and recommendations.

Key words: extracorporeal membrane oxygenation, extracorporeal life support, acute respiratory distress syndrome, artificial lung ventilation, pediatric patients

AN-1305-056
CASES OF SUCCESSFUL TREATMENT OF HEART FAILURE AFTER CARDIAC SURGERIES
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Low cardiac output syndrome (LCOS) is a leader in the structure of complications and mortality in patients after cardiac and vessels surgery. LCOS causes circulatory hypoxia. Opportunity to use of new inotropic drug draws attention of anaesthesiologists, and ICU physicians of cardio-surgical centers. Levosimendan (SIMDAX, Orion Farma, Finland) is a only calcium sensitiser, pyridazinone-dinitrile derivative with additional action on adenosine triphosphate (ATP)-sensitive potassium channels. Most important effects are increasing of contractile ability of the heart and veins dilatation both to arteries. Materials and methods: Two patients with mitral heart disease were included in the study. The patients undergone mitral valve replacement (MVR) complicated with LCOS. The original condition of the first patient was critical. Purposes of the patient’s hospitalization were haemodialysis and intensive care. Diuresis of the patient resumed after the
haemodialysis. However heart failure increased and the patient received an urgent mitral valve replacement. Levosimendan infusion was started in order the low cardiac output. The second patient had a critical reduction of the left ventricular ejection fraction (LVEF) after MVR. Levosimendan infusion was repeated in 3 days. In both cases Levosimendan use had positive effect on LVEF, haemodynamics and the duration of artificial lung ventilation and stay in the ICU.

Key words: cardio-surgery, levosimendan, heart failure, intensive care

AN-1305-058
EFFICIENCY OF HYDROXYETHYL STARCH USE FOR ARTERIAL HYPOTENSION AND SHOCK IN EARLY POSTOPERATIVE PERIOD
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It is common knowledge that arterial hypotension is a one of most prevalent pathology of early neonatal period and it causes severe neurological complications. Purpose of the prospective randomized open study was to assess the efficacy of HES 130/0.4 (6% Voluven) as a start medicine for arterial hypotension in early neonatal period in comparison with normal saline solution (0.9% NaCl). Materials and methods: the study was held from January 2010 to September 2011. Newborns of the ICU with arterial hypotension on the first day of life were included into the study. Acute haemorrhage was an exclusion criterion. Routine monitoring of arterial pressure, heart rate and diuresis was carried out in all newborns. pH, pCO2, pO2, blood glucose, lactate and BE levels were measured before and after the treatment. Echocardiography, examination of regional blood flow in anterior cerebral artery, renal artery and mesenteric artery was held. HES 130/0.4 (6% Voluven) and saline solution (0.9% NaCl) were used. Parameters of haemostasis, biochemical and haematological analysis monitored after the solutions use. Time of arterial pressure normalization and duration of the treatment positive effect were recorded. Episodes of hypotension, amount of cardiotonics per day and per 7 days and duration of cardiotonics administration were recorded as well. Results: 6% Voluven infusion both to 0.9% NaCl infusion normalizes the regional circulation. Furthermore it increases the blood pH and diuresis. Lactate level normalization occurred only after 6% Voluven infusion. There was not change of serum sodium level. Liver enzymes, C-protein, prothrombin index were same in both groups of patients. 6% Voluven use in newborns with extremely low birth weight was accompanied with increasing of creatinine level, prolongation of activated partial thromboplastin time and increasing of intraventricular hemorrhage rate. Newborns with weight over 1000 gram did not have these complications. Voluven advantage in comparison with saline solution is a decreasing of cardiotonics administration in patients with weight over 1000 gram. Conclusions: 6% Voluven is more effective than 0.9% NaCl for increasing of cardiac output, myocardial contractile ability and diuresis, normalization of liquid balance and lactate level, decreasing of cardiotonics amount. 6% Voluven can be recommended for arterial hypotension treatment in newborns with weight over 1000 gram both to normal saline solution especially in case of shock.

Key words: newborns, shock, arterial hypotension, HES

AN-1305-063
METHODOLOGICAL APPROACHES FOR ASSESSMENT OF INTRACRANIAL ANEURISMS TREATMENT EFFICIENCY
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Recently vascular neurosurgery is on stage of comparing of different techniques for intracranial aneurisms treatment. Clinical and randomized studies provide with data that different drugs and techniques have neuroprotective effect, for example haemogenesis growth factors. To introduce any growth factors in practice the research proving the effectiveness of the drug must be carried out. Accurate and complete characteristics of treatment outcomes play the main role in all studies. Terms of outcomes assessment must be characterized and patients must be distributed in order of their condition. The article briefly reviews the problem of comparative assessment of different techniques for intracranial aneurisms treatment.

Ключевые слова: оценка эффективности лечения внутричерепных аневризм, шкала Hunt—Hess, шкала WFNS, шкала Рэнкина

AN-1305-069
APNEIC OXYGENATION
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Recent technological advances in thoracic and tracheal surgery make the anaesthesiologist use different respiratory techniques during the operation. Apneic oxygenation is a one of alternative techniques. This method is relatively easy in use, does not require special expensive equipment and is the only possible
technique in several clinical situations when other respiratory methods are undesirable or cannot be used. However there is no enough information about apneic oxygenation in Russian. This article reviews publications about apneic oxygenation. The review deals with experiments on diffusion respiration in animals, physiological changes during apneic oxygenation in man and defines clinical cases when apneic oxygenation can be used.

Key words: apneic oxygenation; diffusion respiration; thoracic anaesthesia; tracheal surgery; respiratory techniques

AN-1305-075

CLINICAL RECOMMENDATIONS