**P-1**

Postoperative Analgesic Efficiency of Ultrasonography Guided Ilioinguinal-Iliohypogastric Block Compared to Ultrasonography Guided Transversus Abdominis Plane Block in Paediatrics Undergoing Unilateral Lower Abdominal Surgery: A Randomized Prospective Study

Turhan O, Türk HS, Așık ME, İṣıl CT, Tombul M, Ediz N, Akın M, Oba S
Erzurum Hınıs Governmental Hospital
Şişli Etfal Training and Research Hospital

**Objective:** Transversus-abdominis-plane-block (TAPB) provides efficient analgesia in adults undergoing major abdominal surgery, but its efficacy is still investigated in the pediatric population. Ilioinguinal-iliohypogastric-block (IIIHB) has been used as an analgesic and anaesthetic method in children for years. In the last years ultrasonography (USG) guided blocks have increased. The success of this technique also increased and complication rates decreased. In this study our aim was to investigate the postoperative analgesic efficiency of USG-guided-IIIHB and USG-guided-TAP-block in paediatrics undergoing unilateral lower abdominal surgery.

**Methods:** After obtaining local ethics committee approval and informed consent of the children's parents, 60 patients ASA-I scheduled to undergo elective unilateral lower abdominal surgery were divided into two groups after anaesthetic induction: Group1, USG-guided-IIIHB was performed with 0.3 mL kg⁻¹ 0.25% bupivacaine; Group2, USG-guided-TAP-Block was performed with 0.3 mL kg⁻¹ 0.25% bupivacaine. If haemodynamical changes indicating pain were observed, fentanyl 0.5 mcg kg⁻¹ was added. Total amount of fentanyl, anaesthesia-operation duration and recovery time were recorded. Patients were observed for 24 hours postoperatively. FLACC-pain-score was noted at postoperative 0,1 and 2 hours. Rescue and additional analgesic requirements, nausea-vomiting, first analgesic time, total analgesic consumption were recorded. Rescue analgesic was 1 mg kg⁻¹ tramadol intravenously and paracetamol 15 mg kg⁻¹ orally administered when FLACC score was >4.

**Results:** Demographic variables, anaesthesia-surgery time, recovery time, HR, complications were not statistically significant different. Surgery began earlier in Group1 (p=0.042). Perioperative fentanyl consumption, rescue and additional analgesic requirements first analgesic time, FLACC scores were similar in both groups.

**Conclusion:** This study indicated that USG-guided-IIIHB and USG-guided-TAP-block in pediatrics undergoing unilateral lower abdominal surgery provided similar postoperative analgesic efficiency. Both techniques can be used in pediatrics with benefits of low pain-scores and complication rates.

**P-2**

The Effects of Ultrasound Guided Thoracic Paravertebral Block on Both Intraoperative Anesthetic Agent and Postoperative Analgesic Consumptions for Percutaneous Nephrolithotomy in Children

Akın M, Hatipoğlu Z, Özçengiz D, Güleç E
Çukurova University Faculty of Medicine Department of Anesthesiology

**Objective:** We aimed to evaluate the effect of ultrasound guided thoracic paravertebral block (PVB) with bupivacaine on both perioperative anesthetic agent consumption and postoperative analgesia in pediatric patients undergoing percutaneous nephrolithotomy for kidney stone surgery.

**Methods:** Between the ages 1-5 years, 40 patients were enrolled into this study and randomly divided into two groups. The group I patients were performed ultrasound guided thoracic PVB with 0.5 mL kg⁻¹ bupivacaine 0.5% after providing prone position. The group II patients were given 15 mg kg⁻¹ of paracetamol for postoperative analgesia. Patients' hemodynamic parameters, oxygen saturation, sevoflurane concentration were recorded during surgery. Pain scores (FLACC), satisfaction of parents, number of the patients who additional analgesic requirements, and side effects were also recorded following surgery.

**Results:** Intraoperative sevoflurane concentrations were found significantly lower in group I than group II (p=0.000). There were no analgesic requirement in group I, however it was determined in 18 (90%) of the patients in group II. FLACC scores were determined to be decreased in group I compared with group II (p=0.000).

**Conclusion:** Ultrasound guided thoracic PVB is superior to intravenous paracetamol according to intraoperative sevoflurane and postoperative analgesic consumption for percutaneous nephrolithotomy surgery in pediatric patients.
Our Anaesthetic Experience for Magnetic Resonance Imaging (MRI) in Children
Işıl CT, Sayın P, Türk HS, Aybey F, İpek I, Obu S
Şişli Hamidiye Etfal Training and Research Hospital

Objective: Due to the recent improvements in technologic and pharmacologic fields, diagnostic approaches under anaesthesia are increasingly used outside the operative rooms. To increase success rates and provide patient safety during these procedures anaesthesiologists play an important role. We aimed to investigate safety of our anaesthetic approach in children receiving anaesthesia for MRI.

Methods: All children aged 0-18 years, who underwent MRI under anaesthesia from January 2013 to January 2014 at Şişli Hamidiye Etfal Training and Research Hospital were included in this study. Retrospectively total MRI account, demographic variables, anaesthetic drugs, recovery time and complications were recorded.

Results: A total of 822 patients were accessed. Patients’ sex ratio female/male was 421/401, age ranged from 2 months-8 years (mean age 2.9±1.9 years). MRI was done for cranial imaging in 507 patients, spine in 201 patients, combined cranial-spine in 99 patients and other imaging in 15 patients. 751 patients received propofol, 52 patients received midazolam-propofol and 19 patients received midazolam-ketamine. Procedure time was as follows: 13±2 min, 27±6 min and 35±10 min; Recovery time: 1±0.5 min, 2±2 min and 8±6 min. MRI was completed in all patients. Desaturation (SpO2<90) occurred in 5 patients and was handled with jaw thrust maneuver, bradycardia (20% decrease in heart rate) occurred in 2 patients, nausea in 3 patients.

Conclusion: Propofol maybe a good choice for anaesthesia in MRI for children, especially for short imaging. But for prolonged imaging additional propofol dose or different drug combination is required. Finally it should be considered, that imaging quality and success depends on precluding patient’s movement during imaging.

Does Oculocardiac Reflex Change According to Surgeons Experience?
Yüksel A, Yıldırım A, Aygıt ED, Akar S, Karabulut G, Sıvacıgil MI, Gökyiğit B
Beyoğlu Eye Research and Training Hospital, Anesthesiology
Beyoğlu Eye Research and Training Hospital, Ophthalmology

Objective: Oculocardiac reflex (OCR) occurs particularly through manipulation of the medial rectus muscle and results in a bradycardic arrhythmia. The incidence of OCR during strabismus surgery has been variously reported as 14% to 90%. The aim of this present study is to investigate whether the OCR changes according to surgeons’ experience during strabismus surgery in children.

Methods: After obtaining Institutional Review Board approval and informed consent from children’s parents, we enrolled three hundred paediatric patients, with ASA physical status I or II, aged 1-10 yr, undergoing strabismus surgery. Patients were randomly allocated into two groups: surgeries performed by surgeon who has experience more than fifteen years (Group 1, n:150) and by surgeon less than fifteen years (Group 2, n:150). No premedication was given. Topical lidocaine drops were also used to decrease the incidence OCR. Monitoring was consisted of ECG, pulse oximetry, and capnography. Anesthesia was induced with sevoflurane 8% and 50% N2O in O2. Laryngeal mask airways were placed without muscle relaxant. Anesthesia was maintained with 1-1.3 MAC of sevoflurane with 50% N2O in O2. All patients’ demographic data, duration of surgery, duration of anesthesia were recorded. OCR was defined as a reduction in HR of >20% induced by traction of an extraocular muscle. HR were measured baseline (HR1), 30 seconds before extraocular muscle traction (HR2) and immediately after traction (HR3). Percent changes in HR (ΔHR) were calculated using 100 x (HR2-HR3)/HR2. The degree of changes in ΔHR (<20%, 20-39% and >40%) were recorded. If the HR did not increase after release of muscle traction, atropine 0.01 mg kg⁻¹ was administered. All results were expressed as means±SD or number (%). SPSS for Windows version 15.0 was used for the statistical analysis. The groups were compared using independent sample t-test and Fischer’s exact test; p value <0.05 was considered significant.

Results: There were no differences between groups in demographic data (age, sex, body weight, number of muscles operated). The total time, including anesthesia and surgery, in group 2 was higher than in group 1. When HR1, HR2, and HR3 were compared in between Group 1 and Group 2, differences were not statistically significant. In group 1 and group 2 ΔHR (14.1±14.9% vs. 15.0±16.3%) and degree of changes in ΔHR were similar. The incidence of OCR (24.7% vs. 26%) were not statistically significant in between groups.
Atropine was used in small percentage of patients in Group 1 and Group 2 (6.7% and 10% respectively) and required atropine dose was not statistically significant between the two groups.

**Conclusion**: Increase in surgeons’ experience decreases operation and anesthesia duration. ΔHR and incidence of OCR does not change according to surgeons’ experience.

**P-5**

**Preoperative Anxiety in Children Undergoing Urethral Dilatation Procedure**

Pulsawat P, Leelanukrom R

Associate Professor Ruenreong Leelanukrom

Pichanun Pulsawat

**Objective**: To study the correlations of previous anesthetic anxiety to present preoperative anxiety and behavioral compliance during inhalational induction of anesthesia in preschool to school-aged children undergoing urethral dilation procedure.

**Methods**: A cross-sectional descriptive study was conducted in 86 children aged 1-7 years with the ASA physical status I-II presenting for elective urethral dilatation procedure in King Chulalongkorn Memorial Hospital. Previous anesthetic anxiety was judged by yes/no question answered by the parents whether the child had anxiety in each previous anesthesia. The frequency of “yes” of >50% of the total anesthesia was recorded as the child had previous anesthetic anxiety. The present preoperative anxiety was evaluated by the modified-Yale Preoperative Anxiety Scale (m-YPAS). The m-YPAS of >40 was recorded as preoperative anxiety. The demographic data and previous anesthetic induction technique (inhalational vs. intravenous) were also recorded. The anesthetic induction was performed with sevoflurane in N₂O/O₂ while the parent was present during induction in all cases. Behavioral compliance was also assessed by the Induction Compliance Checklist (ICC) score. The score >4 was judged as poor compliance. The correlations of previous anesthetic anxiety to present preoperative anxiety and compliance during induction were analyzed. The association between previous anesthetic induction technique and preoperative anxiety was also assessed. Chi-Square test and unpaired t-test were applied as appropriate. The p-value of <0.05 was considered as statistical significance.

**Results**: Eighty-six boys with the mean age of 4.31±1.63 years were enrolled. The mean of m-YPAS and ICC score were 40.83±13.81 and 3.62±3.92, respectively. 54.65% of children were presented with preoperative anxiety and 43.02% had poor behavioral compliance during inhalational induction. Previous anesthetic anxiety were significantly related to present preoperative anxiety (p=0.016) and behavioral compliance during inhalational induction (p=0.017). There was no association between previous anesthetic induction technique and preoperative anxiety (p=0.351).

**Conclusion**: Previous anesthetic anxiety was associated with present preoperative anxiety and behavioral compliance during inhalation induction of anesthesia. Measures for reduce anxiety to the child with repeated anesthesia should be provided.

**P-6**

**Change in Oculocardiac Reflex with Traction of Medial and Lateral Rectus Muscles During Strabismus Surgery in Children**

Yıldırım A, Yüksel A, Aygıt ED

Beyoğlu Eye Research and Training Hospital

**Objective**: Oculocardiac reflex (OCR) is defined as a decrease in heart rate (HR) of more than 20% of baseline value, dysrhythmia, or sinoatrial arrest which occurs particularly through manipulation of the rectus muscles. In children the incidence is reported as 14% to 90%. This study is designed to evaluate and compare the incidence and severity of OCR and the requirement for atropine during strabismus surgery in children.

**Methods**: After obtaining Institutional Review Board approval and informed consent from children's parents, we enrolled one hundred paediatric patients, with ASA physical status I or II, aged 1-10 yr, undergoing strabismus surgery. Patients were randomly allocated into two groups: Medial rectus muscle traction group (Group MR, n:50) and lateral rectus muscle traction group (Group LR, n:50). No premedication was given. Topical lidocaine drops were also used to decrease the incidence of OCR. Monitoring was consisted of ECG, pulse oximetry, and capnography. Anesthesia was induced with sevoflurane 8% and 50% N₂O in O₂. Laryngeal mask airways were placed without muscle relaxant. Anesthesia was maintained with 1-1.3 MAC of sevoflurane with 50% N₂O in O₂. All patients' demographic data, surgery time, anesthesia time, oxygen saturation, and end-tidal CO₂ were recorded. HR were measured baseline (HR1), 30 seconds before extraocular muscle traction (HR2) and immediately after traction (HR3). Percent changes in HR (ΔHR) were calculated using 100 x (HR2-HR3)/HR2. OCR was defined as a reduction in HR of >20% induced by traction of an extraocular muscle. If the HR did not increase after release of muscle traction, atropine 0.01 mg kg⁻¹ was administered. All results were expressed as mean±SD or number (%). SPSS for
Windows version 15.0 was used for the statistical analysis. The groups were compared using independent samples t-test and Fischer’s exact test; p value < 0.05 was considered significant.

**Results:** Demographic and clinical data (age, sex, body weight, surgery time, anesthesia time, oxygen saturation, end-tidal CO2) of the two groups were similar. When HR1, HR2, and HR3 were compared in between MR and LR groups, differences were not statistically significant. However in MR and LR groups ∆HR (17.3±21.3% vs. 9.5±14.6%) and incidence of OCR (44% vs. 16%) were statistically significant. Atropine was used in small percent of patients in MR and LR groups (10% and 2% respectively) and the difference of atropine required between the two groups was not statistically significant.

**Conclusion:** During monitorization traction of MR muscle results in incidence of oculocardiac reflex, so surgeons must be informed about gentle traction on muscles especially medial rectus muscle during strabismus surgery in children. The traction of LR muscle did not effect in incidence of OCR according to the results of this study.

**P-7**

**Our Rethinopathy of Prematurity (ROP) Photocoagulation Under General Anaesthesia Experiences**

Gökçeceylan B, Cengeçaylı B.Ö, Tök L, Tök Ö, Eroğlu F, Özcan E  
Süleyman Demirel University School of Medicine Department of Anesthesia and Reanimation  
Süleyman Demirel University School of Medicine Department of Ophthalmology

**Objective:** Aggressive posterior retinopathy of prematurity (ROP) can, if left untreated, rapidly progress to total retinal detachment within 1-2 weeks (1). In this paper we retrospectively analysed our clinical experiences about the anesthetic-management of photo coagulation therapy of very preterm (VPT) infants admitted for treating retinopathy of prematurity (ROP).

**Methods:** Retrospectively collected perinatal/neonatal data on all admissions of infants born at <32 weeks of gestational age and subsequently admitted to the neonatal intensive care and/or orththalamic clinical of from clinical records and anesthesis records of 103 infants who underwent laser photo coagulation for ROP between January 2010 and January 2014 at the Department of Anesthesiology and Intensive Care, School of Medicine, Suleyman Demirel University, Isparta, Turkey. Records were reviewed for airway management and respiratory complications in addition to medical and demographic data.

**Results:** The mean operation time was 81.04±30.46 min. The mean gestational age was 27.89±2.29 weeks and the mean gestational weight was 1050.89±327.33 grams. The mean operation weight was 2009.88±621.93 grams. The anaesthesia induction was performed with Sevoflurane in 50%-50% oxygen-air mixture and 1 µcg kg⁻¹ fentanyl. The endotracheal intubation was performed without using neuromuscular blockers. The mean endotracheal tube size was 2.62±0.65. Only in four cases cuffed endotracheal tube was used. LMA was used in 1 case. Anaesthesia induction was performed with 1 MAC sevoflurane in 50% O₂-N₂O mixture.

**Conclusion:** General anaesthesia in premature infants may have many respiratory and hemodynamic complications. Photo coagulation therapy of retinopathy of prematurity (ROP) has been performed successfully in our hospital. The surgical and anaesthesia teams’ successfully coordinative performances require safe surgery for these neonates.

**P-8**

**The Retrospective Evaluation of Our Experience in Anesthesia Pediatric Cases Undergoing Orthopedic Surgery**

Temizel F, Özay H, Erkal H, Bombacı E, Büyüküırlı H, Uçkun S, Çevik B  
Dr. Lütfi Kırdar Kartal Training and Research Hospital

**Objective:** Pediatric patients present with a variety of orthopedic conditions, including congenital deformities, traumatic injuries, infections, and malignancies. Anesthetic management of the pediatric orthopedic patients involves not only the usual pediatric patient considerations, such as airway management, fluid replacement, and maintenance of body temperature, but also the unique concerns associated with orthopedic surgery. We report retrospectively the anesthetic management experience in pediatric orthopedics.

**Methods:** A review of patient records consisting of age, sex, airway management, surgical procedure and postoperative follow up between January 2010 and December 2013.

**Results:** Totally 236 (43.5%) female and 306 (56.5%) male children with mean age of 6.48 were operated in pediatric orthopedic clinic during 3 years period. All patients operated under general anesthesia. While 350 (64.58%) patients were orotracheal intubated LMA was inserted to 192 (35.42%) patients for airway implementation. 267 (49.1%) upper extremity and 182 (33.1%) lower extremity surgery with 60 (11.78%) patients congenital hip displasia, 19 (3.5%) trigger finger, 9 (1.6%) scoliosis and 5 (0.92%) foreign body excision. 82.2% of all cases were traumatic injuries. There was not any significant postoperative complication or ICU fol-
low up requirement. Postoperative pain problem was 4% and nausea-vomiting 2% despite routine postoperative analgesia regimen was tramadol and paracetamol.

**Conclusion:** Majority of the pediatric orthopedic cases in our institution was traumatic injuries. However trauma is seen less than in adult orthopedic surgery population, it is a major reason of mortality and morbidity in children. Detailed preoperative assessment is important in pediatric anesthesia management for preventing peroperative complications.

**P-9**

**General Anesthesia in Methyleneetetrahydrofolate Reductase Deficiency**

Orhon ZN, Koltka EN, Tüfekçi S, Devrim S, Dorken T, Güracelik M

Istanbul Medeniyet University Göztepe Training and Research Hospital Department of Anesthesiology and Reanimation

**Introduction:** Methyleneetetrahydrofolate reductase (MTHFR) deficiency is an autosomal recessive disorder that results in increased homocysteine levels in the body. Nitrous oxide (N2O) inhibits methionine synthetase, which transforms homocysteine to methionine. Inhibition of methionine synthase by nitrous oxide leads to an increase in homocysteine because it cannot be remethylated to methionine. Hyperhomocysteinemia itself predisposes to venous and arterial thrombosis with a three to sixfold increased risk compared to the normal population. Therefore, it is important to avoid N2O while administering anesthesia to patients with MTHFR deficiency. We discussed anesthesia management for this type of patient.

**Case Presentation:** We present a child with MTHFR deficiency who underwent elective hypospadias surgery. He was an 8-year-old boy, American Society of Anesthesiology (ASA) physical status I, 22 kg, 120 cm, Mallampati class 1 airway. The patient had a heterozygots MTHFR C677T gene mutation, which predisposes him to vascular thrombosis, diagnosed when he was 1-year-old, during the investigation of epilepsy etiology. Before the operation, his homocysteine level was 6.37 micromol L⁻¹ and the other blood tests results were normal. After premedication with 1 mg midazolam and application of standard monitoring (electrocardiogram, non-invasive blood pressure, pulse oximetry), general anesthesia was induced with fentanyl (1 mcg kg⁻¹), and propofol (2 mg kg⁻¹). Muscle relaxation was achieved by administration of 0.5 mg kg⁻¹ rocuronium, and patient was oratracheally intubated. For anesthesia maintenance, an infusion of propofol (5 mg kg⁻¹ h⁻¹) and remifentanil (0.1 mg kg⁻¹ h⁻¹) were used and the trachea was ventilated with an air oxygen mixture of 50%:50%. 12 hours after general anesthesia homocysteine level was measured. It was 5.99 micromol/L, contrary to expectations it was decreased. The patient was closely followed postoperatively for tromboembolic events. No complication was recorded.

**Conclusion:** It was concluded that total intravenous anesthesia with propofol and remifentanil is suitable anesthetic technique for the patients with MTHFR deficiency.

**P-10**

**Peri-Operative and Postoperative Analgesic Efficacy of Ultrasound Guided Transversus Abdominis Plane (TAP) Block in Pediatric Patients Undergoing Unilateral Lower Abdominal Surgery**

Açık ME, Aybey F, Türk HS, Ediz N, Cigsar EB, Oba S

Erzurum Hınıs Governmental Hospital

Şişli Hamidiye Etfal Training and Research Hospital

**Objective:** TAP block has been reported to provide effective analgesia in adult patients after lower abdominal surgery. There are few randomised controlled clinical research about efficacy in pediatric patients. We evaluated perioperative and postoperative analgesic efficacy of ultrasound guided transversus abdominis plane block in pediatric patients undergoing unilateral lower abdominal surgery.

**Methods:** After local ethical committee approval and written informed consent from parents, 60 pediatric patients of ASA physical status I, undergoing unilateral, elective, primary, open lower abdominal surgery were enrolled in this randomised controlled study. Anesthesia induction without neuromuscular-blocking-agents was done and a larengeal-mask-airway was inserted to all patients. Then patients were allocated into two groups: Group 1; Ultrasound-guided-TAP-block was performed before surgery with 0.3 mL kg⁻¹ 0.25% bupivacaine and Group 2; intravenous paracetamol 15 mg kg⁻¹ was infused before surgery. Demographic data, anesthesia, surgery and recovery times total remifentanyl consumption, HR, MAP, postoperative FLACC scores were recorded. For rescue analgesic tramadol and additional analgesic ibuprofen was given. Nausea and vomiting, first rescue analgesic time and additional analgesic need were not significantly different in both groups.

**Results:** Age, gender, weight was similar in both groups. Anesthesia, surgery and recovery times, total remifentanyl consumption were not significantly different in both groups. HR and MAP were similar. Complications, first rescue analgesic time and additional analgesic needs were not significantly different in both groups.
Conclusion: Ultrasound guided TAP block in pediatric patients has similar efficacy with paracetamol at lower abdominal surgery. As a part of multimodal analgesia techniques, TAP block can be used effectively.

P-11
Awake Caudal with Few Drops of Oral Dextrose in Premature Infants

Seyedhejazi M
Tabriz University of Medical Sciences

Objective: Inguinal hernia is a common disease in preterm infants necessitating surgical repair. Despite the increased risk of postoperative apnea in preterm infants, the procedure was conventionally performed under general anesthesia (GA). Recently, regional anesthesia approaches including spinal and caudal blocks have been proposed as safe and efficient alternative anesthesia methods in this group of patients. The current study evaluates awake caudal with oral few drops of dextrose in preterm infants undergoing inguinal hernia repair.

Methods: After approval of local ethic committee and written parental consent in a randomized clinical trial, 66 neonates and infants (weight<5 kg) undergoing inguinal hernia repair were recruited in Tabriz Teaching Children Hospital during a 8-month period of time. They were randomly divided into two equal groups; receiving either caudal block by 1 mL kg^{-1} of 0.25% bupivacaine plus 20 µg adrenaline (group C) or 1 mL kg^{-1} of 0.25% bupivacaine plus 20 µg adrenaline with few oral dextrose drop (group D). Vital signs and pain scores were documented during operation and thereafter up to 24 hours after operation.

Results: Decrease in heart rate and systolic blood pressure was significantly higher in group D throughout the study period (p<0.05). Failure in anesthesia was significantly higher in group C (p=0.04). Straining during block was less in group D (p<0.05). The mean recovery time was same in both groups.

Conclusion: More appropriate success rate, hemodynamic stability, less straining could contribute to caudal block with few oral dextrose drops in awake preterm infants undergoing inguinal hernia repair.

P-12
Rate of Severe Malnutrition and Prognosis in Pediatric Patients of Our Hospital

Ekinci O, Terzioğlu B, Yılmazakyüz E, Geren GE
Haydarpaşa Numune Teaching and Research Hospital, Anesthesiology and Intensive Care Unite
Haydarpaşa Numune Teaching and Research Hospital, Clinical Pharmacology
Haydarpaşa Numune Teaching and Research Hospital, Nutrition and Diet Unite

Objective: Malnutrition is one of the most important reasons of morbidity and mortality in pediatric patients. Therefore, we aimed to evaluate the malnutrition rates, duration of hospitalization and the efficacy of our nutritional therapy and prognosis of hospitalized pediatric patients.

Methods: Nutritional status of pediatric patients hospitalized between 1st January 2012-31st December 2013 was evaluated at admission according to Nutritional Risk Screening-2002 (NRS-2002) scoring system. Patients with NRS-2002 score ≥3 and who were hospitalized longer than 24 hours were included in the study. Nutritional supplementation was applied in accordance with ESPEN 2010 (European Society for Parenteral and Enteral Nutrition) guideline by our Hospital Nutrition Support Team. Patients were followed-up with weekly anthropometric and laboratory measurements. Prognosis after treatment and length of hospital stay were evaluated.

Results: 58 of 4225 (1.37%) patients who were hospitalized longer than 24 hours had NRS-2002 score ≥3. Of the 58 pediatric patients with malnutrition, 31 were male and 27 were female; mean age was 10.6 years. 44.82% (n=26) of included patients were hospitalized because of infection, and 55.17% (n=32) were hospitalized due to non-infectious causes (6 patients had protein energy malnutrition). 40 patients had concomitant disease. The mean albumin value at admission was 2.91 g dL^{-1}, mean prealbumin value was 14.12 mg dL^{-1} and mean CRP value was 4.63 mg dL^{-1}. At discharge, mean albumin value was 2.81 g dL^{-1}, mean prealbumin value was 14.71 mg dL^{-1} and mean CRP value was 4.64 mg dL^{-1}. Nutritional supplementation of 23 pediatric patients were given by nasogastric, 16 by oral (2 received hospital meal, 14 received hospital meal+enteral nutrition), 4 by peripheral+oral, 9 by PEG, 6 by central route. When the distribution of seventeen clinics where the patients were treated was evaluated, it was found that most of the malnourished pediatric patients were hospitalized in Pediatrics Clinics (44.82%) and third degree intensive care unit (39.65%). The mean length of hospital stay was 14.14 days, mortality rate was 18.96% (n=11) and discharge rate was 81.03% (n=47) in patients with high NRS-2002 score.
Conclusion: The rate of malnourished pediatric patients in our hospital and their length of hospital stay were lower than that was found in the study of Güleç et al. (1) in 2011 and multicenter study conducted in Spain, 2011 (2). We concluded that hospitalized pediatric patients should also be evaluated in terms of malnutrition and this has of great importance for early diagnosis and treatment.

References

P-13
Methemoglobinemia Due to Prilocaine in a 25 Days Old Neonate After Renal Biopsy: Case Report
Sayın P, İşıl CT, Türk HS, İpek I, Oba S
Şişli Hamidiye Etfal Training and Research Hospital

Prilocaine is a local anaesthetic agent, that is used in various fields of medicine like anaesthesia outside the operating room, where it is commonly an additional support to sedation. Besides its widespread use it has a potentially life treating complication -methemoglobinemia. Methemoglobinemia is presented with varying degrees of cyanosis.

In this case report we present a 2450 gr weighing, 25 days old male neonate, who developed cyanosis after renal biopsy in our hospital’s interventional radiology laboratary. The neonate was sedated with inhalation sevoflurane and additional supportive local prilocaine of 25 mg was accidently injected to the biopsy area by the radiologist. Central cyanosis appeared six hour after the procedure. Methemoglobin level reached 31%. The patient was referred to the intensive care unit and ascorbic acid therapy (300 mg kg⁻¹) was given. SpO₂ levels were about 88% under oxygen-mask. Methemoglobin levels decreased to 12.3% in the 12th hour and to 1.3% in the 24th hour post-procedurely. Finally the patient was discharged from intensive care unit. No additional complication was observed.

The anaesthesiologist should be aware of not only complications related to general anaesthetic drugs, but also to local anaesthetics. Anaesthesia outside the operating room deserves attention of the anaesthesiologist in every step, including other specialists’ autocontrol, of invasive procedures. Besides neonates need an extra portion of attention during every type of anaesthesia. The important thing is, that complications are recognized soon and treated immediately.

P-14
Pulsed Radiofrequency of Dorsal Root Ganglion for Treatment of CRPS in an Adolescent with Poliomyelitis Sequelae
Apılıoğulları S, Aydın BK, Onal O, Demir AE, Kırac Y, Çelik JB
Selçuk University Medical Faculty

Introduction: Patients with sequelae of poliomyelitis usually undergo several surgical procedures and, most often, these are orthopedic surgeries. Complex regional pain syndrome (CRPS) is a painful and debilitating syndrome in which the patient presents with disabling pain, edema, vasomotor, or pseudomotor abnormalities. Here, we describe an adolescent patient with poliomyelitis exhibiting type I CRPS that developed after a series of orthopedic surgeries. The patient was successfully treated with an application of pulsed radiofrequency (PRF) current to the L4 and L5 dorsal root ganglions (DRGs).

Case Presentation: A sixteen year-old female patient was admitted to the Orthopedics and Traumatology department for limb length inequality secondary to poliomyelitis. Right femoral shortness and right tibial torsion were diagnosed during her examination. Surgery was performed in July of 2013 for her right femoral shortness with limb lengthening over an intramedullary nail procedure. Two months later, she received a derotational osteotomy with intramedullary nail surgery for her tibial torsion (September 2013). During the second surgery, she also had femoral external fixator removal and Achilles tendon lengthening operations.

Four weeks after her discharge from the hospital, she was admitted to the pain clinic and diagnosed with type I CRPS that was resistant to medical treatment. PRF treatment was explained to both the patient and her parents, and informed consent was obtained before undertaking the procedure. After premedication, the patient was placed in a supine position under fluoroscopy using a C-arm, and a 22-gauge RF cannula for the lumbar level was placed around the affected L5 DRG. PRF waves were then applied for 240 seconds, with the endpoint being an electrode tip temperature not exceeding 42°C.

The patient’s visual analog scale (VAS, 0-100 mm) scores decreased from 100 to 50 the day after intervention. Two weeks later, she complained of pain only on the medial side of the leg. We performed PRF on the L4 DRG using the same technique. The patient’s VAS pain scores decreased from 50 to 10 immediately after the intervention. The patient tolerated the procedures well and no significant complications occurred.
Conclusion: CRPS is a clinical entity in which severe neuropathic pain is suffered to the extent that the patient’s social, professional, and psychological lives are disturbed. This case suggests that (1) the central somatosensory system may play an important role in the etiology of CRPS, (2) PRF application may be tolerated by adolescent patients, and (3) PRF application to the DRG provides an effective and rapid onset of the reduction of pain related to CRPS in adolescent patients with sequelae of poliomyelitis.

P-15

A Simple Method to Determine the Size of the Laryngeal Mask Airway in Children

Haliloğlu M, Bilgen S, Uztüre N, Koner O
Yeditepe University Medical Faculty. Department of Anesthesiology

Objective: The size of the laryngeal mask airway (LMA) in children is determined by the patient’s weight. However, in some instances an alternative method may be needed. The aim of our study was to determine the relationship between the size of the the pinna of the children with the optimal size of the LMA.

Methods: After institutional ethics board approval and written informed consent from parents, 160 children with ASA physical status I-II, scheduled for routine urologic surgery and in whom a LMA was indicated for anesthesia were included in the study. The size of the LMA was determined by choosing the size that was best matched with the pinna of the children. The results were compared with the standard method recommended by the manufacturer’s weight-related guidelines. The patients were classified in different groups depending on the LMA sizes determined by both methods. A kappa coefficient evaluated the agreement between both techniques.

Results: Insertion and good ventilation was achieved in 92.5% on first attempt, 5.7% required a second attempt. 3 patients had to be intubated. Agreement between two methods of LMA size selection was moderate using κ-statistics.

Conclusion: Choosing the size of the LMA in children according to the pinna of the children is of valid and practical, particularly an alternative method in those situations where the patient’s weight is unknown, such as in emergency situations or borderline instances.

P-16

Epidural Anesthesia for Pediatric Patients with Arthrogryposis Multiplex Congenita Undergoing Corrective Osteotomy

Osaka Medical Center and Research Institute for Maternal and Child Health

Objective: Arthrogryposis multiplex congenita (AMC) is characterized by multiple joint contractures and sometimes accompanied by anomalies such as cleft palate, spinal deformities and restrictive pulmonary disease. Difficulties with tracheal intubation and peripheral venous cannulation, and postoperative respiratory issues are often concerns. Due to these problems, neuraxial anesthesia is considered for perioperative pain management. However, there have been few reports of epidural anesthesia for pediatric AMC patients.

Methods: We experienced 3 pediatric AMC patients who were managed with general anesthesia with epidural anesthesia. All the patients were scheduled for corrective osteotomy and did not have severe vertebral problems. The first patient was a 16-year-old boy. After the induction of general anesthesia, an epidural catheter was placed at the L3/4 and advanced 5cm cephalad. For intraoperative analgesia 0.25% ropivacaine was used and postoperative analgesia was with continuous 0.2% ropivacaine as patient controlled epidural analgesia. The second patient was a 12-year-old boy and anesthesia and perioperative analgesia was the same as the first case. The third patient was a 5 year-old-girl and 0.375% ropivacaine was used for intraoperative analgesia. The epidural catheter was removed just after the operation, because a bilateral long-leg hip spica cast was applied. In all the cases, analgesic effect was sufficient and no major complication was observed.

Results: In AMC patients, neuraxial anesthesia could be difficult because of the spinal deformity. In the cases with severe scoliosis, the efficacy of epidural anesthesia remains uncertain and epidural anesthesia should be reserved. AMC patients might demonstrate neural symptoms such as numbness or paralysis. These symptoms might worsen after epidural anesthesia and the analgesic effect could be unstable and we should be cautious in applying epidural anesthesia in these cases. Our first patient had a numbness in his toes beforehand, though no deterioration was observed after epidural anesthesia. In addition, none of them had less effective or extended analgesia. As our patients did not have specific vertebral problems, the procedures were smooth and without any complication.
**Conclusion:** We could safely and successfully manage pediatric AMC patients by general anesthesia with epidural anesthesia. This case report suggests that neuraxial anesthesia could be a good option for AMC patients, especially whose respiratory function is impaired.

**P-17**

Withdrawn

**P-18**

Anesthetic Management of Patients with Mucopolysaccharidosis (MPS): Report of Four Cases

Barış S, Atmaca S, Kelsaka E, Karakaya D

**Objective:** MPS is a progressive, inherited, metabolic storage disease with multiorgan involvement. The establishment and maintenance of an adequate airway represents the most commonly encountered anesthesia-related problem in these patients. In this report, we share our experience and discuss the anesthetic risks and airway management of four MPS patients who required surgical intervention.

**Methods:** Three of four patients had (aged between 8 months and 2.5 years) thickening of the tongue and oropharyngeal soft tissues, and short neck. Two of them had Mallampati score of 3, the other child had 2. All of them were ventilated easily and intubated successfully in the first attempt. Cormack-Lehane scores were 3 in all. Sugammadex was used for neuromuscular reversal. No problem was encountered during intraoperative and postoperative period. Fourth patient (10 years old) had a past history of scrotal mass operation five years ago and he was intubated successfully in the first attempt. This time he was planned for umbilical herniography. He had macroglossia and scoliosis. Both mask ventilation and intubation were difficult. A tracheotomy cannula was inserted with a urgent surgical tracheostomy. SpO₂ was 98-99% during the operation. Then he was transferred to the intensive care unit. He has been living with tracheostomy for two years.

**Conclusion:** Airway management is difficult in patients with mucopolisaccharidosis. Preoperative preparation should be done meticulously and with multidisciplinary approach. Airway management should have several back-up plans. Sugammadex should be ready for patients with anticipated difficult ventilation or intubation.

**P-19**

General Anesthesia Management During MRI of Pediatric Patient Experience of 298 Patients


**Institution:** Ankara Children’s Hematology-Oncology Research and Training Hospital Department of Anesthesiology and Reanimation

**Introduction:** Magnetic resonance imaging (MRI) is important in the diagnosis of diseases. During MRI, strict immobility is needed. Anesthesia-assisted MRI is essential for a group of children to establish the immobility. However preparation for anesthesia during MRI needs special cautions, motivation. We aim to share our experience to alter the unwillingness and difficulties.

**Methods:** Our general anesthesia management of pediatric patients during MRI is reported.

**Cases:** Between January 2012 and December 2012, 298 pediatric patients were evaluated with MRI assisted by anesthesia. Male/female ratio was 174/124. Patients were between 45 day-17 year-of-age. Two hundred-forty-seven patients were diagnosed with neurologic diseases (cerebral palsy, epilepsy, mental and/or motor retardation), 81 of 247 patients had also additional disease.

**Results:** None of the patients were premedicated. Intravenous line was established in the preparation room while they were with their parents. All patients sedated and monitored with pulse-oximetry, electrocardiogram, supported with nasal oxygenation in MRI unit. Endotracheal intubation wasn’t performed. Propofol and midazolam were the main drugs, used in 292 children. Additionally, ketamine was performed in 17 patients. Eleven patients needed atropine because of bradycardia, hypersecretion. Propofol and midazolam was administered with slow injection to get enough sedation at induction. Titrated additional doses of propofol was administered for uninterrupted immobilization.

**Conclusion:** Children often require sedation to avoid panic episodes, motion artifacts. Ten percent of all MRI cannot be completed, even started because of claustrophobia. Neurologic diseases were the main group among MRI studies. Anesthetic problems with these patients during MRI were common. Coughing, hiccupping, iv access, abnormal movement of head during respiration were our common problems. We needed few intervention (position of head, oral airway), no procedures were aborted. Most of our patients were ASA 2-3. Also, 73% of patients were under 11 year-of-age. Propofol is popular anesthetic drug for sedation (rapid onset, effective anesthesia, rapid-complete recovery, prevention of nausea/vomiting, less sedation related adverse events, easier
to titrate). In our patients, propofol, midazolam, ketamine provide effective sedation.

Other disadvantages; MRI units are located away from operating rooms and standard anesthesia equipments (anesthesia machines/pumps/monitors) aren’t used because of magnetic field. Patient’s medical condition enforced the circumstances of anesthesia. Anesthesia environment must be well-prepared at these units. In our MR unit we have MR-compatible anesthesia machine/monitors.

At these circumstances, experienced, trained anesthesiologists are needed. Our anesthesiologists in children’s hospital clinician, as pediatric anesthesiologist. However, anesthesiologist willing to perform MRI anesthesia can be experienced within a short-term post-graduate education in a children hospital.

P-20

Acupuncture for Antiemesis in Children Who Underwent Adenotonsillectomy

Clinic of Anesthesiology and Reanimation, Dışkapı Child Diseases Hospital
Clinic of Ear Nose Throat, Dışkapı Dışkapı Child Diseases Hospital

Objective: Nausea and vomiting is the most common case among the child patients having tonsillectomy operation after the general surgery, and one of the problems negatively affecting the comfort of the patient. Acupuncture application from the alternative medicine is effective for the prevention of the nausea and vomiting. However, the studies on the pediatric age groups are very limited. In this study, it is aimed to present the common use of acupuncture method and its minimizing effect for postoperative nausea and vomiting (PONV) deficiency in the child patients to whom adenotonsillectomy was applied.

Methods: The research was conducted to ASA I-II 70 patients, 2 to 14 years old, having standard general anaesthesia and adenotonsillectomy operations. The patients were indiscriminately divided into two groups. Antiemetic cure was not treated to both groups because of the standard applications in the preoperative period. Acupuncture needle was applied to P6 acupuncture point at least intraoperative for 20 minutes to one of the groups. All patients were controlled in preoperative 24 hours. The patients vomiting was observed, were recorded.

Results: There was not any difference in both groups’ patients in terms of age, sex, application of the surgery operation, anesthe-
sia induction was provided by intravenous agents in the other patients. Laryngeal mask airway was placed in majority of the patient (92.59%). The duration of operation was ranged from 20-65 minutes. Postoperative analgesia was provided by intravenous analgesics and caudal block. No major complications were recorded.

**Conclusion:** Good anesthetic management consists of selection of appropriate anesthetic agents and techniques, reduction of postoperative nausea, vomiting and pain and facilitation of fast recovery and discharge. The aim in pediatric surgical procedures must be based on minimal disruption of child’s life and separation from their family.

**P-22**

The Distance from the Skin to the Lower Thoracic Epidural Space in Infants and Children

Osaka Y, Yamashita M, Kobayashi K
Komatsu Orthopaedic Clinic
University of Tsukuba Hospital

**Objective:** Epidural anesthesia in infants and children has been popularized in recent years (1). Suitable equipment and techniques, understanding pharmacokinetics of local anesthetics and also depth of epidural space are important for safe practice of epidural puncture in these small patients. The distance from the skin to the lumbar epidural space in infants and children has been reported (2). We measured the distance from the skin to the lower thoracic epidural space in infants and children.

**Methods:** Infants and children, receiving lower thoracic epidural anesthesia for elective surgery were included in this study. Patients with coagulopathy, vertebral abnormalities, systemic and local infection were excluded. The epidural puncture was performed using a “drip and tube” method at thoracic level of vertebra under general anesthesia (3). The distance from the skin to the epidural space was measured.

**Results:** One hundred and twenty six patients from 0 day to 8 years were included in this study. Three patients were excluded because of ineffective block. In the group with body weight more than 5 kg, the distance to the epidural space (D) was well correlated with body weight (W). The relationship was expressed as follows, 

\[ D = 9.82 + 0.504 \times W \]

And the relationship could be simplified as follows. 

\[ D = 9.8 + 0.5 \times W \]

However in the group with weight less than 5 kg, there were no correlation between the distance to the epidural space and the body weight.

**Conclusion:** The depth from the skin to the lower thoracic epidural space was well correlated in patients with the body weight more than 5 kg. Care must be taken especially in infants under 5 kg, because the distance to epidural space and body weight was not correlated.

**References**


**P-23**

Bedside Anesthesia in the Pediatric Patients in Burn Intensive Care Unit (BICU)

Yiğitözay H, Kuzucuoğlu T, Elerçevik B, Yakupoğlu S, Turan AZ
Dr. Lütfi Kırdar Kartal Education and Research Hospital Department of Anesthesiology and Reanimation

**Objective:** Washing of the wounds, the change of the dressing and the debridement of burned skin usually performed in BICU and require sedoanalgesia. Anxiety and pain control during these interventional bedside procedures is an important issue especially in pediatric patients. In this study we aim to assess whether our sedation protocol in BICU is effective.

**Methods:** Demographics, burn scale percentage, the need of mechanical ventilation support, length of ICU stay, total amount of sedation application, affectivity and adverse effects of sedoanalgesia protocols of 93 pediatric patients in burn intensive care unit between December 2010 and November 2013 were retrospectively evaluated.

**Results:** Male to female ratio was 62.3% to 37.7% of the patients. Mean age of the patients was 5.6 years. According to admission, the distribution of the patients were as follows; boiling water burns 56.9%, thermal burns 30.1% and electrical burns 12.9%. Mean burn percentage of all patients was 29.2%. The mean length of stay in BICU was 12.3 days and mortality rate was 11.8%. During ICU follow up mean sedoanalgesia application was 5.5 per patient for bedside interventional procedures. 78% of patients received midazolam (0.1 mg kg\(^{-1}\)) + ketamine (5 mg kg\(^{-1}\)), 18% received midazolam (0.5 mg kg\(^{-1}\)) + ketamine (5 mg kg\(^{-1}\)). Only 4% of the patients received additional propofol (2 mg kg\(^{-1}\)). In repetitive sedoanalgesia applications drug tolerance developed and
propofol demand increased. Comfort Pain Scale targets were 12-13 and routine monitorization was done during all procedures. Adverse effects were rush, tachycardia, hypersalivation and hypopnea (more with propofol). No serious organ injury and hemodynamic effects were seen during all types of sedoanalgesia regimens.

**Conclusion:** We determined that our sedoanalgesia protocols have enough efficacies for interventional bedside procedures in BICU. Midazolam ketamine combination generally provides adequate sedoanalgesia, however in rare cases additional dose of propofol might be necessary.

**P-24**

The Comparison of Different Anesthetic Managements Used to Facilitate Endotracheal Intubation Without Neuromuscular Blocking Agents in Pediatric Patients

Yılmaz Ö, Üzümcügil F, Sayın MM, Özlü O

Düzkapı Yıldırım Beyazıt Training and Research Hospital
Dużce University Faculty of Medicine Department of Anesthesiology

**Objective:** Endotracheal intubation (ETI) without neuromuscular blocking agents (NMBAs), which is a common practice in pediatric patients, has been reported to be facilitated by using propofol as an adjunct to sevoflurane induction (1). In this retrospective study, our aim was to compare different anesthetic managements used to facilitate ETI without NMBAs, in terms of the changes in laryngoscopy and intubation conditions, hemodynamic parameters and the need for additional drug or dose requirements.

**Methods:** The anesthesia records of 2-10 year-old ASA I-II patients, who underwent elective surgical operations between October 2012 and March 2013, were assessed for eligibility. The drugs and doses used for both the induction and maintenance of anesthesia, were recorded in order to group the patients. Hemodynamic parameters, the scores of laryngoscopy and intubation conditions, and the need for additional drug or dose requirements were recorded and analysed for comparing the different anesthetic managements.

**Results:** The anesthesia records of 169 patients were assessed and 88 were included to the study for further analysis. The 91% of these patients were reported to have tonsillectomy and adenoidectomy procedures. The patients who received remifentanil in addition to propofol as the adjunct, were grouped according to propofol doses. The patients who received 1-1.5 mg kg⁻¹ and 2-2.5 mg kg⁻¹ propofol were grouped as Group P₁R and Group P₂R, respectively. The remifentanil doses were within a range of 1-1.2 µg kg⁻¹. The scores of laryngoscopy and intubation conditions were similar. The hemodynamic responses to laryngoscopy, defined as the change in heart rate, were increased in Group P, and were within normal range in Group P₁R and Group P₂R. The additional drug and/or dose requirements were similar in Group P and Group P₁R. However, these additional requirements were significantly higher in Group P₂R.

**Conclusion:** In pediatric patients, the addition of propofol and remifentanil as adjunct to sevoflurane+N₂O induction may preserve hemodynamic stability during ETI without NMBAs. Propofol at a dose range of 2.6-3.5 mg kg⁻¹ as the sole adjunct and propofol at a dose range of 2-2.5 mg kg⁻¹ with remifentanil 1-1.2 µg kg⁻¹ may reduce the need for additional drug/dose. However, tonsillectomy and adenoidectomy procedures involve the use of a mouth opener, which may induce a second stress response. This response may not have been suppressed by propofol <1.5 mg kg⁻¹ with 1-1.2 µg kg⁻¹ remifentanil and may have led to additional drug/dose requirements. For this reason our results may not be true for all types of surgical procedures. However, we may suggest using the stress response to mouth opener as a primary outcome parameter in studies addressing the ETI without NMBAs, as well as the laryngoscopy and intubation conditions.

**P-25**

Use of Tranexamic Acid in Children Underwent Open Heart Surgery to Reduce Blood Loss

Salikhodjaev SH, Jälilov G, Pirmazarov D, Muborakov T, Ismailova M, Yusupov A

Clinic of Tashkent Pediatric Medical Institute

**Objective:** Blood savings effect of antifibrinolytic drugs during open heart surgery proven by lot of research. Use of Tranexamic acid (TA) is one of the most effective tool of treatment and prevention of bleeding of various origins, both adults and children. The purpose of study: Determine the optimal dosing regimen of Tranexamic acid to reduce blood loss after open heart surgery in children.

**Methods:** In a controlled study included 25 patients admitted for radical correction of TOF and VSD. Studied a group...
of patients did not have statistically significant differences in age, gender composition, body weight (an average of 12±5 kg), duration of surgery (196±15 min). Surgical approach was identical (Sternotomy). The patients had no initial coagulopathy and perioperative received thromboprophylaxis with heparin. At the end of surgery, postoperative wound was drained using a drainage system to collect blood. If blood loss after surgery exceeded 7-10 mL kg⁻¹ h⁻¹, blood transfusion was carried out in order to maintain tissue perfusion. Transfusion of allogeneic red blood cell (RBC) was performed at lower levels of Hb 70-80 g L⁻¹. On the basis of correcting therapy of postoperative bleeding, all patients were divided into two groups. For patients of the first group (control, n=12) was used FFP of 10 mL kg⁻¹. For patients of the second group (basic, n=13) as the correction of postoperative bleeding was carried TA by bolus every 15 min-10 mg kg⁻¹ (during first 3 hours after surgery).

Results: RBC transfusion was required in one patient in the study group. None patients had clinic of thrombotic complications. Indicators of the coagulation system in both groups were comparable.

Conclusion: Administration of Tranexamic acid 10 mg kg⁻¹ every 15 minutes in the early postoperative period significantly reduced postoperative blood loss and significantly reduces the need to use of blood products (FFP, RBC).

---

P-26

Translaryngeal Illumination by a Led-Transilluminator for Tracheal Intubation in Infants and Children

Kobayashi K, Osaka Y, Yamashita M
Komatsu Orthopaedic Clinic, Hitachinaka, Japan
University of Tsukuba Hospital, Japan

Objective: A pencil torch has been suggested as a way to illuminate the laryngeal structures during laryngoscopy in case of a failure of the laryngoscope light. Currently, we have access to a much brighter source of light. Therefore, we have tested the feasibility of tracheal intubation under translaryngeal illumination by a LED-transilluminator.

Methods: Batteries were removed from a laryngoscope. This way, the laryngoscope was not the light source for tracheal intubation. The larynx was transilluminated anteriorly by a portable red LED-transilluminator through the cricothyroid membrane for translaryngeal illumination during laryngoscopy with no light from the scope. Orotracheal intubation was tried under this external lighting.

Results: The laryngeal inlets were easily identified by translaryngeal illumination. And even without laryngoscopy light, orotracheal intubation was successful in all 15 patients, ranging 8-day (2.8 kg) to 5-year-old (19 kg), under translaryngeal illumination.

Conclusion: There has been an increase in the popularity of light-emitting diode (LED)-based, battery-powered transilluminators for facilitating transcutanous vascular access in adults and neonates. During routine laryngoscopy, the vocal cords and surrounding structures are visualized, but the lumen of the trachea is not well illuminated. Therefore, in a sense, we are inserting the tracheal tube into a dark hole, and, occasionally, the dark hole turns out to be the oesophagus. Since the laryngeal inlets were clearly illuminated from the tracheal side, this may improve anaesthesiologist confidence during tracheal intubation. If we apply this translaryngeal illumination, in addition to routine laryngoscopy (with light on) in cases of difficult anatomy, it might be helpful in identifying the laryngeal inlet. In conclusion, translaryngeal illumination by a LED-transilluminator can provide enough lightening for tracheal intubation in case of a failure of the laryngoscope light.

Reference

---

P-27

Preoperative Autologous Blood Donation in a Paediatric Patient Undergoing Cardiac Surgery

Sahutoğlu C, Karaca N, Kocabaş S, Askar FZ, Atalay A, Atay Y
Ege University Faculty of Medicine, Department of Anaesthesiology and Reanimation
Ege University Faculty of Medicine, Department of Cardiac Surgery

Introduction: Preoperative autologous blood donation is among the transfusion strategies used to reduce allogeneic blood transfusion and its associated risks such as hemolytic, allergic, febrile reactions, infections and immunosupression. In this case report, we present our transfusion strategy involving preoperative autologous blood donation in a paediatric patient undergoing cardiac surgery.

Case Presentation: Fourteen years old, male patient (143 cm, 43 kg) with a history of mitral valvular disease was hospitalized due to an increase in symptoms of mitral regurgitation. Mitral valvular repair surgery was planned for the patient. On preanaesthetic visit, the patient’s complete blood count, and routine biochemical tests were within normal limits. The patient who had an A Rh positive blood type was found to be positive for cold agglutinins and antibo-
ies on screening tests. The patient’s surgery was cancelled, as appropriate blood units that could be safely used were unavailable in blood banks. Three consecutive autologous blood donations of 400 mL with one week interval between each donation were planned for the patient. The patient was given a 400 mL of 0.9% isotonic solution to maintain normovolemia during each blood donation. The donated blood was separated into blood products and stored for later use by the blood bank. After one month of autologous blood donation, a mitral valve repair was performed under general anesthesia. The patient was cooled to 28°C body temperature on cardiopulmonary bypass. The duration of aortic cross clamp, cardiopulmonary bypass and surgery were 58 min, 74 min and 230 min, respectively. The patient was transfused one unit of autologous erythrocyte suspension and one unit of autologous fresh plasma after cardiopulmonary bypass. The patient’s intraoperative and postoperative courses were uneventful. The patient was mechanically ventilated in the intensive care unit until the sixth postoperative hour. The patient was discharged from the hospital on the seventh postoperative day in good health.

**Conclusion:** Preoperative autologous blood donation was safely performed in a paediatric heart surgery patient, in whom appropriate cross matched blood was unavailable due to cold agglutinins and antibodies on blood screening tests. Preoperative autologous blood donation may be a feasible option in paediatric patients undergoing surgery, in whom appropriate blood units are unavailable. In this way, patients may also be avoiding allogeneic blood transfusion and its associated risks.

**Reference**

---

**P-28**

**Epidural Anesthesia for the Fetoscopic Laser Coagulation Treatment of Twin-To-Twin Transfusion Syndrome**

Yamada M, Ono R, Taniguchi A, Kinouchi K
Osaka Medical Center and Research Institute for Maternal and Child Health

**Introduction:** The purpose of this study was to evaluate our anesthetic management in the fetoscopic laser coagulation (FLC) of the placental vascular anastomoses of monochorionic twins with twin-to-twin transfusion syndrome (TTTS).

**Methods:** Seventy-six parturients who underwent FLC for TTTS at our institution from October 2010 to August 2013 were recruited to the study. Anesthetic and clinical records were retrospectively reviewed. All patients received epidural anesthesia. A catheter was placed through lumbar or lower thoracic epidural space. Ropivacaine was used to provide effective anesthetic level between Th7-12.

**Results:** Out of 76 parturients, 7 (9%) required sedative drugs, six of whom had the duration of surgery longer than an hour and complained back pain. Another case received intravenous fentanyl and midazolam for pain control. Forty-five patients (59%) developed intraoperative hypotension, which was quickly treated by ephedrine or phenylephrine. The mean rate of intravenous infusion was 320 mL hr⁻¹. None required airway management, developed pulmonary edema nor other severe complications. Postoperative fetal survival at 7 days was 92% for 2 fetuses and 95% for 1 fetus.

**Conclusion:** Epidural anesthesia was an adequate and safe technique for parturients undergoing FLC for TTTS.

---

**P-29**

**The Retrospective Evaluation of Anesthetic Management of Newborn Patients Having Neural Tube Defects Anesthesia**

Temizel F, Arslan G, Çevik B, Sezen Ö, Derman S, Erkal H, Hiçdönmez T
Dr. Lütfi Kirdar Kartal Training and Research Hospital

**Objective:** Neural tube defects anesthesia is one of a relatively frequent anomaly seen in neonatal period. When the neural tube does not close completely, a neural tube defect develops with herniation of meninx (meningocele) or spinal cord (Myelomeningocele). Since there is high risk of infection and death these newborns have to be operated as soon as possible. We report retrospectively the neonatal anesthesia management experience due to neural tube defect surgery.

**Methods:** We review the patient records consisting of age, sex, weight, mode of delivery, neurologic examination, anesthetic management and postoperative follow up between January 2009 and August 2013.

**Results:** 70.96% (44) female and 29.03% (17) male newborn underwent surgery. The mean age was 3.74 days. Mean weight was 3097 gr. 50.8% (31) of patients were vaginal delivery, 49.2% (30) were cesarean section and 6.5% (4) were prematures. Preoperatively 59.1% (36) did not have any neurologic sequelle, 40.9% (25) had paraplegia.
Inhalational anesthesia technique was used during both induction and maintenance of anesthesia. Postoperatively 6.5% (4) of patients were taken to ICU as orotracheal intubated, 59.01% (36) were taken to neonatal ICU in incubator and 36% (22) in pediatric neurosurgery service.

**Conclusion:** Careful preoperative assessment of coexisting anomaia is significant before neonatal tube defect surgery. These patients have rarely elevated intracranial pressure however defects above T4 level generally presents with paraplegia. Both inhalational or intravenous anesthetics could be used during induction. Patient position, hypotermia and fluid management during neonatal neurosurgery management are important points.

---

**P-30**

**Case Report-Anti-Asthma Management for Phaeochromocytoma Removal in A 17-Year-Old Girl**

Keskin G, Akın M, Saydam S, Özmert S, Şenaylı Y, Sever F, Kurt DT, Şenel E, Demirel F

**Ankara Children’s Hematology-Oncology Research and Training**
**Hospital Department of Anesthesiology and Reanimation**
**Ankara Children’s Hematology-Oncology Research and Training**
**Hospital Department of Pediatric Endocrinology**
**Ankara Children’s Hematology-Oncology Research and Training**
**Hospital Department of Pediatric Surgery**

**Introduction:** Phaeochromocytoma is a rare tumour of the chromaffin tissue characterized by high secretion of catecholamines. Only 5% of all phaeochromocytomas have been reported in children. This rarity poses additional difficulties to the anaesthesist. In this report we discussed our anaesthesia management in a child with phaeochromocytoma.

**Case Presentation:** A girl aged 17 years had a history of sweating, headache, weakness and arrtgalgy. She was taking colchicines for Familial Mediterranean Fever (FMF). There was left axis deviation on electrocardiogram, hypertrophic interventricular septum and a sole mass on the right adrenal gland. Serum norepinephrine was elevated. Because of hypertension phenoxybenzamine was given so blood pressure (BP) and heart rate (HR) were at normal range on the operation day. For premedication midazolam was given. Anaesthesia was achieved with lidocaine 2%, thiopental, vecuronium, fentanyl and sevoflurane. BP and HR increased during induction then phenolamine was given. An arterial line a central venous catheter were placed. Electrocardiogram, HR, SpO₂, end tidal CO₂, invasive BP, CVP temperature and urine output were monitored. For postoperative pain tramadol and diclophenac sodium were given. During operation colloid fluid was infused, phenolamine and sodium nitroprussid were given. Postoperatively haemodynamic parameters were stable, there was no need for anti-hypertensive agents. She was discharged from the hospital on the 6th days postoperatively.

**Discussion:** Phaeochromocytoma is rare in children, with only 5% of all cases. In children male/female ratio is 2:1. Our patient was girl and she has FMF also. FMF with phaeochromocytoma hasn’t been reported yet.

Arterial hypertension is the most common sign in childhood. In contrast with adults, tachycardia is extremely rare in children. In our patient hypertension was treated with oral phenoxybenzamine.

Induction of anaesthesia should be very smooth to avoid changes in hemodynamic parameters. Our case was premedicated with midazolam. Thiopental sodium is acceptable induction agents. Opioids should be used also. Vecuronium was preferred due to its minimal effect on the cardiovascular system. One minute before intubation, intravenous lidocaine should be given to abolish sympathetic stimulation. Sevoflurane can be used for anaesthesia maintenance. If hypertension is present in deep anaesthesia, phenolamine should be given in single intravenous doses. If this fails, sodium nitroprussid infusion should be started. In our case, phenolamine and sodium nitroprusside were used successfully; there was no need to use β-blocker.

**Conclusion:** Sufficient peroperative preparation, readiness for the problems and close monitoring are fundamentals for successful anaesthetic management of these very occasional cases.

**References**


---

**P-31**

**Retrospective Evaluation of Laryngeal Mask Insertion in 1150 Pediatric Eye Surgery Cases**

Erkal H, Arslan G, Temizel F, Özşeker M, Çevik B

**Dr. Lütfi Kırdar Kartal Education and Research Hospital**

**Objective:** Being a standard and widely accepted supraglottic airway device for airway management in children, laryngeal
mask (LM) has been commonly used in pediatric anesthesia. This study was performed to investigate airway complications related to LM use in a selected group of pediatric patients undergoing ophthalmic surgery.

**Methods:** One thousand and one hundred fifty pediatric patients were enrolled during 3-year period, of the 1824 patients who underwent general anesthesia, 1150 patient (63%) airways were managed with the laryngeal mask.

There were 542 males and 608 females. ASA I or II children, age ranges was 1 month to 12 years (average 6.4 years), they weighted between 2.6 kg and 43 kg (mean 11 kg).

No premedication were given. LM were placed using the reverse technique in all patients. The success rate of LM insertion at first attempt was evaluated based on the ventilation status; easy ventilation was defined as the presence of normal capnogram wave and lack of air leak after LM insertion. LM were removed after the end of operation, then the patient were sent to our post-anaesthesia care unit. The incidence of adverse effects (coughing, gross movement, laryngospasm, agitation, nausea, vomiting, sore-throat, respiratory depression, glossoptosis, breath holding and hypercapnia) were also noted.

**Results:** The LM was easily inserted in 1136 patients (98.8%), on the first attempt in 980 (85.2%) and on the second attempt in 102 (8.9%) patients. In 54 patients (4.7%) LM was successfully inserted on the third attempt. In 14 patients (1.2%) LM could not be inserted with three attempts and tracheal intubation was performed.

A total of 82 critical incidents were related to airway management. Laryngospasm was recorded in 10 (12.9%) patients, bucking occurred in 10 (12.9%) patients. Breath-holding in 16 (19.5%) patients and coughing in 24 (29.3%) patients were noted. All the complications were transient and none of patients required intubation. No episodes of regurgitation were also recorded.

**Conclusion:** LM can be regarded as a safe product for effective airway maintenance during elective pediatric ophthalmic surgeries with a few minor complications.

---

**P-32**

**Our Paediatric Caudal Block Experience**

Türk HS, İşıl CT, Tombul M, Sayın P, Ediz N, Oba S

*Şişli Hamidiye Etfal Training and Research Hospital*

**Introduction:** With a high success rate caudal-block is especially used in paediatrics, who undergo perineum and lower-abdominal-surgery, to provide perioperative and postoperative analgesia. Today, caudal-block has become one of the most popular regional-anaesthetic-techniques in paediatric surgery. In our study, we evaluated retrospectively subjects, who were operated in our paediatric-surgery-clinic in the year 2012 and who received a caudal-block.

**Methods:** Data of subjects, who were operated and who received a caudal-block in our paediatric-surgery-clinic were collected for one-year period of 2012. Retrospectively the total operation-regional anesthesia-caudal block account, demographic variables, anaesthetic induction techniques, anaesthetic drugs, operation duration, procedural time, complications were recorded.

**Results:** In the year 2012, a total of 3258 operations were performed by our paediatric-surgery-clinic. Total number of subjects, who received regional anaesthesia was 1896, 1213 male and 683 female, mean age 5.9±4.3 years. 518 of them got a caudal block, mean age 3.1±2.3 years, 365 male and 153 female. Operation duration was 40.3±12.7 minutes, procedure time 4.7±1.3 minutes. 247 of the subjects underwent hypospadias, 115 bilateral-inguinal-hernia, 77 undescended-testes+circumcision, 41 inguinal-hernia+circumcision, 38 unilateral-inguinal-hernia operations. In 377 subjects levobupivacaine 0.25% and in 141 subjects bupivacaine 0.25% was injected. 55 subjects received fentanyl, 7 dexmedetomidine as adjuvan. A laryngeal-mask was inserted to all subjects under general-anaesthesia. Anaesthesia induction was done with sevoflurane in 380, and with intravenous anaesthetics in 141 subjects bupivacaine 0.25% was injected. 55 subjects received fentanyl, 7 dexmedetomidine as adjuvan. A laryngeal-mask was inserted to all subjects under general-anaesthesia. Anaesthesia induction was done with sevoflurane in 380, and with intravenous anaesthetics in 138 subjects. During the follow-up-time in the perioperative-records no complications were detected. No postoperatif-analgesia-duration and rescue-analgesic-requirement records could be found.

**Conclusion:** Caudal block is an anaesthesia technique with high success, simple administration and low complication rate. Furthermore, it can be used for analgesia in paediatric patients, who will undergo surgery below umblicus, by injection of combined local-adjuvant anaesthetic in one-injection-technique.
P-33

Pediatric Pseudocholinesterase Deficiency Prevalence and Affecting Factors in Turkey

Özmert S, Tokat S, Sever F, Saydam S, Akin M, Keskin G, Kurt D, Kızılgün M, Tokat AO
Anesthesiology and Reanimation Specialist, Ankara Childrens Health and Illness Haematology Oncology Training and Research Hospital
Anesthesiology and Reanimation Specialist, Türkiye Yüksek İhtisas Training and Research Hospital
Biochemistry and Clinical Biochemistry Specialist, Ankara Childrens Health and Illness Haematology Oncology Training and Research Hospital
Thoracic Surgery Specialist, Ankara Training and Research Hospital

Objective: Pseudocholinesterase (PCE); present in heart, liver, pancreas and serum, is an enzyme responsible for the elimination of muscle relaxants admistrated in general anes-thesia. In this study, we aimed to reveal the frequency of PCE deficiency in our country, which has an important role on the onset of general anesthesia complications and insecticide intoxication prognosis.

Methods: We reviewed pediatric group patients’ (down to 18 year old) PCE results obtained from our biochemistry lab records between 2008 and 2013. With the serum PCE levels, patients’ age, sex, liver and kidney function data were also included in our computer based study.

Results: In this study, we reviewed 15,309 patients’ PCE results. PCE level in 5.5% of the patients low (Low than 5320 U/L). There were not significant differences between the age groups and sex (Male N=8704 PCE deficiency 5.6%, Female N=5529, PCE deficiency 5.3%) (p<0.001). The PCE deficiency rate was 14.6% for the patients with high ALT levels, 8.3% for the ones with high AST levels, 11.8% with high urea levels, 14.3% with high creatinine levels, and it was found that there was statistically a meaningful increase in the PCE deficiency levels (p<0.001). PCE deficiency rate was 50% for the patients with elevated either of ALT, AST, urea or creatinine levels (p<0.001).

Conclusion: It is not possible to mention about an average number for our country just regarding the patient groups studied in our hospital for the present study. However, it is concluded that PCE deficiency is a widespread situation observed in our country. It is probable to think about the occurrence of the PCE deficiency in case of the increased values especially in the liver and/or kidney functions during the preoperative run in the child patient group.

P-34

Anaesthesia in Interventional Radiological Procedures for Children

İşıl CT, Sayın P, Türk HS, İpek I, Oba S
Şişli Hamidiye Etfal Training and Research Hospital

Objective: Interventional radiologists sometimes eliminate the need for children to undergo anaesthesia. Interventional procedures are generally less risky and less painful for children compared to surgery. These procedures also tend to have less postprocedural discomfort, require a shorter hospital stay and need less nursing care. The aim of this study was to evaluate anesthetic experience in interventional radiological procedures for children.

Methods: Patients under age 18 receiving an interventional radiological treatment or procedure during 01.01.2013-01.01.2014 time period in Sisli-Hamidiye-Etfal-Training-and-Research-Hospital were included in this study. Retrospectively the total procedure account, demographic variables, anaesthetic drugs, recovery time and complications were recorded.

Results: Data of totally 165 patients were accessed. There were 75 girls and 90 boys. Interventional procedures were needle biopsy (72%), percutaneous nephrostomy catheter placement (12%) and other procedures. Average age was 3±2years and weight was 11±8kg. The youngest patient was 2 days old 2150 g and underwent liver biopsy. Totally 99 patients received propofol-fentanyl, 21 patients midazolam-ketamine, 38 patients inhalation anaesthesia with sevoflurane and 5 patients ketamine-propofol. Procedure/recovery time was as follows related to the groups described before: 15±5/2±2min, 18±2/12±2min, 10±2/2±0.5min and 21±13/20±5min. Cardiopulmonary-arrest occurred in one patient, the patient was responsive to resuscitation. Local anaesthetic intoxication developed in 5 patients.

Conclusion: This study showed that the anaesthetic drug combination was determined by procedure duration and patient characteristics. Especially in critical patients as pre-matures or syndromic children the anaesthetic management is quite challenging. Also difficult ventilation due to patient position should be considered. Therefore an anesthesia platform should be present in the interventional-radiology-unit.
The Comparison Between Ultrasound-Guided Ilioinguinal/ Iliohypogastric Nerve Block and Bupivacaine Local Infiltration for Postoperative Analgesia in Pediatric Inguinal Surgery

Faculty of Medicine, Chulalongkorn University

Objective: To compare the immediate postoperative pain between ultrasound-guided ilioinguinal/iliohypogastric nerve blocks (US II/IH) and local anesthetic infiltration (IF) in pediatric inguinal surgery.

Methods: After the institutional IRB approval, the prospective randomized double-blind study was conducted in 55 ASA PS I-II children, aged 1-6 years, who were scheduled for unilateral open herniotomy or hydrocelectomy.

The standard anesthetic technique was inhalation induction with N₂O, O₂ and sevoflurane. After LMA insertion, the anesthesia was maintained by N₂O, O₂ and sevoflurane up to 3%. As for US group (n=23), II/IH nerve block was performed using 0.25% bupivacaine 0.5 mL kg⁻¹ with the aid of ultrasound. As for IF group (n=32), 0.5 mL kg⁻¹ of 0.25% bupivacaine was injected between the internal oblique and transverse abdominis muscles and also the subcutaneous layer by surgeon before closing the wound. At the PACU, emergence agitation was assessed on arrival and at 30 minutes by 5-point rating scale. Pain was assessed by CHEOPS at 30, 60 and 120 minutes after the operation. Fentanyl 0.5 mcg kg⁻¹ was given when emergence agitation score of >3 or CHEOPS of >8. Postoperative fentanyl consumption was recorded and analysed as the primary outcome of the study. P-value of <0.05 was considered as significant difference.

Results: The mean of postoperative fentanyl consumption in US II/IH and IF were 0.37±0.41 and 0.25±0.34 mcg kg⁻¹, respectively with no significant difference (p=0.25). The percentages of patients who receive fentanyl in postoperative period in US II/IH group and IF group were 52.2% and 40.6%, respectively. There were also no significant differences in the number of patients who exhibit emergence agitation score of >3 or CHEOPS of >8 between two groups.

Conclusion: The US II/IH and IF with bupivacaine provided the comparable postoperative analgesia in pediatric inguinal surgery.

Propofol-Sedation for Magnetic Resonance Imaging in an Infant with Corpus Callosum Agenesia and Encephalocel: Case Report

İşıl CT, Sayın P, Türk HŞ, Türk B, Oba S
Kağthane Governmental Hospital
Şişli Hamidiye Etfal Training and Research Hospital

A rare combination of congenital intracerebral anomalies is corpus callosum agenesia together with encephalocele. For magnetic resonance imaging (MRI) anaesthesia is required in infants to achieve good imaging quality. Anaesthesia outside the operation room has its own difficulties as lack in equipment and allied health personnel. Additional factors like paediatric patient, not yet diagnosed patient and anaesthesia without intubation make the anaesthetist’s work even more difficult. Propofol is an ideal anaesthetic agent for short-duration procedures, but its usage in infants is still a moot point. In this case report, we wanted to present an infant, who was scheduled to undergo diagnostic MRI because of epileptic seizures.

The patient was 8800 gr weighing, 8 months old, male with a history of epileptic seizures and developmental retardation. Physical examination of cranial bones pointed a defect at the parieto-occipital junction. Venous access in the antecubital vein was provided with a 26 Gauge catheter, monitorization with ECG and SpO2 was done and suplemental oxygen was given by mask at flow rate 6L min⁻¹. Anaesthesia was provided with propofol 2 mg kg⁻¹. No additional medication was required during the procedure. MRI lasted 12 minutes, recovery time (Aldrete score 9) was 2 minutes. Neither apnea nor desaturation (SpO₂<90%) was observed. The infant was discharged after one-hour follow-up for possible nausea-vomiting and other adverse effects. Radiological interpretation indicated corpus callosum agenesia and encephalocele.

MRI under propofol anaesthesia for infants is safe, even in not-yet diagnosed patients. In our MRI-unit we have an anaesthesia-device with vaporizer and fresh gas input, but anyway we don’t intubate the patients under anaesthesia, because the imaging duration is usually short. We also have a monitor not being affected by the MR-device and we can watch the patient outside the MR-room, which is an advantage for us considering noise pollution.
P-37

Anaesthesia in Paediatrics for Colonoscopy

Sayın P, Işıl CT, Türk HS, Urgancı N, Oba S
Şişli Hamidiye Etfal Training and Research Hospital

Objective: Outpatient procedures are developing from day-to-day. Especially in the paediatric population procedures like colonoscopy are very difficult to perform without anaesthesia because of limited communication and anxiety. In this study we evaluated paediatrics scheduled for elective colonoscopy from the anaesthetists’ view.

Methods: All patients under age 18 scheduled for elective colonoscopy during 01.01.2013-01.01.2014 time period in Sisli Hamidiye Etfal Training and Research Hospital were included in this study. Retrospectively the total procedure account, demographic variables, anaesthetic drugs, recovery time and complications were recorded.

Results: A total of 122 patients were accessed. Female/Male ratio was 48/52%. The most frequent reasons for colonoscopy were chronic diarrhea (45%), lower gastrointestinal bleeding (42%) and familial polyposis (10%). Average age was 8±4 years and weight was 25±11kg. The youngest patient was age 2 and 15 kg of weight. The oldest patient was 17 years and 74 kg. Totally 101 patients received propofol-fentanyl, 12 patients received ketamine-propofol and 9 patients received dormicum-ketamine-propofol. Procedure/recovery time was 45±15/5±2 minutes in the propofol-fentanyl group, 47±13/12±2 minutes in the ketamine-propofol group and 51±10/25±5 minutes in the midazolam-ketamine group. Colonoscopy was successfully completed in 103 patients. Desaturation (SpO2<90) occurred in 5 patients, bradycardia (20% decrease in heart rate) occurred in 2 patients.

Conclusion: This study indicates that propofol-fentanyl combination allows quick recovery. Anaesthesia outside the operation room and anaesthesia in paediatric patients require increased attention of the anaesthesiologist. Good anaesthesia quality provides gastroenterologist’s satisfaction and shortness of the procedure time.

P-38

Tracheal Intubation without the use of Muscle Relaxants

Karacaakaslan F, Dumanlıözcan AT, Canlı Ş, Karakoç F
Ankara Atatürk Training and Research Hospital
Erzurum Training and Research Hospital
İzmir Şifa Hospital
Kırıkkale Yüksek İhtisas Hospital

Objective: Aim of this study is comparing the haemodynamic changes and intubation conditions of anaesthesia with alfentanil-propofol and alfentanil-midazolam combination in children.

Methods: Two randomized groups were created among 40 children who were going to have inguinal hernia, hypospadias, or undescended testis operation in the age group of 1 to 5, having ASA 1-2 and mallampati scores of 1-2 under parents’ consent. Before entering the operation room, 1/3 iozde was injected through vascular access. During induction following the standard monitoring, 0.03 mg kg⁻¹ Alfentanil and 3 mg kg⁻¹ Propofol were used in Group PA whereas 0.03 mg kg⁻¹ Alfentanil and 0.1 mg kg⁻¹ Midazolam were used in Group MA. Each child received inhalation induction with Sevoflurane where 50% Oxygen, 50% air and Sevoflurane were chosen for maintenance anaesthesia. Hemodynamic values were recorded as well as intubation valuation, duration of surgery, time to extubation and eye opening and complications. The conditions of intubation were evaluated applying the scoring system devised by Helbo-Hansen Raulo and Trap-Anderson.

Results: No statistical difference related to age, gender, weight, ASA, additional health condition or mallampati scores were detected between the groups (p>0.05). Similarly, intubation conditions in terms of intubation conditions, duration of surgery and intubation, time to extubation and to awakening and need for additional medication, no meaningful statistical difference was observed (p>0.05). However, the time between intubation and surgical intervention was decreased in Group MA compared to Group PA (p=0.03).

Conclusion: Both induction regiments provided clinically acceptable intubation conditions and hemodynamics during tracheal intubation in children undergoing inferior abdominal surgery.
P-39

Retrospective Analysis of Newborns with Congenital Malformations Who Were Anesthetised

Geren GE, Ekinci O, Turan G, Özgültok A
Haydarpaşa Numune Teaching and Research Hospital, Anesthesiology and Intensive Care Unit

Objective: Anesthesia procedures in newborns with congenital malformations (NCM) have various difficulties because of anatomical and physiological differences compared to normal newborns. In our study we aimed to analyze retrospectively the anesthetized NCM in 2013 in terms of per operative problems.

Methods: Anesthesia was induced with 5 mg kg\(^{-1}\) thiopental and 0.1 mg kg\(^{-1}\) vecuronium in patients who did not get premedication. Patients were intubated by 2.5-3 spiralled tube and given 3 l/min oxygen-air combination by inhalation. Maintenance of anesthesia was achieved with 2 mg kg\(^{-1}\) thiopental and 0.02 mg kg\(^{-1}\) vecuronium when required. At the end of operation muscle relaxants were neutralized with 0.02 mg kg\(^{-1}\) atropine and 0.06 mg kg\(^{-1}\) neostigmine.

Results: Total of 41 newborns was operated. 20 of them had neurosurgical operation, 6 had neurosurgical and reconstructive procedure, 13 had orthopedic and 2 had urological intervention. The youngest newborn was 1.5 hours old and oldest one was 3 days old. Weight of birth varied between 1500 and 3200 grams.

Per operative problems encountered during study were as follows: problems occurred in control of respiratory tract during surgical manipulations and position alteration, 2 patients were extubated during surgical manipulations in per operative period, and they were re-intubated without any complication; changes in environment temperature affected body temperature rapidly thus active heat sources were used in order to keep normal body temperature in all patients.

Conclusion: It is reported that in newborn infants with low birth weight and congenital malformations, hypoxia, hypotension, hyperthermia, hyperglycemia, hypoglycemia are very common and cause secondary damages (1). In our study we concluded that newborns with congenital malformations require careful monitorization and close follow up during anesthesia because problems in control of respiratory tract and body heat are frequently encountered.

Reference

P-40

Anaesthesia for Removal of Tracheobronchial Foreign Body in Children

İslı CT, Erdoğan H, Türk HS, Sayın P, Karabağ SG, Metin S, Oba S
Şişli Hamidiye Etfal Training and Research Hospital

Objective: Aspiration of foreign bodies by children is a common problem around the world. Asphyxiation from inhaled foreign bodies is a leading cause of accidental death among children younger than 4 years. Anaesthetic considerations encompass preoperative assessment, management techniques for flexible or rigid bronchoscopy, and postbronchoscopic disposition.

Methods: Data of children, who were admitted to the operation room with history of foreign body aspiration, were studied for one year period (2013) retrospectively. Patients’ demographics, character of the aspirated material, time since the aspiration, medication for anaesthesia procedure, procedure duration, recovery time and complications were recorded.

Results: Totally 22 bronchoscopic procedures were performed, 17 patients were enrolled in this study because of foreign body aspiration history. Age was average 25.4 months, 8 boys, 9 girls. Preoxygenisation was done with 6 L/min oxygen insufflation. Anaesthesia induction was done with intravenous medication in 52.9% and with sevoflurane inhalation in 47.1%. Fentanyl 1 µg kg\(^{-1}\)+propofol 2 mg kg\(^{-1}\) + esmeron 0.05 mg kg\(^{-1}\) + metilprednisolon 1 mg kg\(^{-1}\) + ranitidin 2 mg kg\(^{-1}\) + aminocardol 2 mg kg\(^{-1}\) were injected standardly. Spontaneous ventilation was not allowed during the procedure, because of probable disposition of the foreign body during the procedure. All procedures were done with rigid bronchoscopy. Location of the foreign body was 64.7% at the right main bronchus, 17.6% at both main bronchia, 11.8% at the carina. 29.4% of the aspirated material was hazelnuts, 17.7% was walnuts, 11.8% was peanuts Hospital stay was average 3.57±12.72 days. Complications occurred in 23.52% and the children were transferred to the intensive care unit. One patient died.

Conclusion: Anaesthesia for foreign body aspiration in children requires a lot of attention of the anaesthesiologist. Even when the right precautions are provided it may still be fetal after the procedure because of residual pieces of the foreign body and possible translocations.
Caudal Epidural Blockage Technique in Pediatric Surgery Cases

Erkal H, Temizel F, Arslan G, Derman S, Çevik B

Dr. Lütfi Kırdar Kartal Education and Research Hospital

**Objective:** The most frequently used regional anesthesia technique is epidural blockage with a caudal approach in pediatric surgery patients. In this study we aimed to evaluate our experience with caudal blockage performed between December 2009 and December 2013 on the pediatric patients.

**Methods:** Of 42453 medical records were screened, 651 pediatric cases were identified and included in this study. From the anesthesia charts, we recorded patients age, sex, weight, types of surgeries performed and details of general anesthesia induction and maintence agents, airway control techniques, in addition we also recorded unsuccessful interventions and complications (intravascular injection, subcutaneous injection, intraosseous injection, hypotension, bradycardia). If any analgesic was given in the postoperative period caudal block was classified as unsuccessful.

**Results:** The minimum and maximum ages of caudal block patients were 3 years and 12 years (mean age was 5.6). One hundred fifty eight (24%) of the patients were female, and four hundred ninety three (76%) were males. Minimum body weight were 6 kg and maximum body weight were 48 kg (mean weight was 17.2 kg). The local anesthetic of choice in caudal block was bupivacaine in all patients. The most frequently used induction agents were sevoflurane (86%) and propofol (14%). In all cases the airway was controlled with laryngeal mask airway.

**Conclusion:** Caudal epidural blockage is a safe and efficient procedure for perioperative and postoperative pain management. As suggested by our results caudal epidural blockage can be performed with high success rate and a low incidence of complications in pediatric cases.

Duchenne Muscular Dystrophy and Sugammadex - A Case Report

Sezen G, Karagöz I, Şeker I, Gümüş Z

Düzce University Faculty of Medicine

**Introduction:** Duchenne’s muscular dystrophy (DMD) is a hereditary disorder characterized by progressive muscle weakness and contracture. Administration of nondepolarizing muscle relaxants is accompanied with a prolonged onset time and spontaneous recovery even after a single dose. Anticholinesterases have been used but the complete spontaneous recovery of neuromuscular blockade in patients remains unclear (1). We report a case in which patient with DMD received sugammadex to reverse a rocuronium-induced profound neuromuscular blockage.

**Case Presentation:** A 6-year-old, weighing 20 kg, boy was admitted to our clinic for adenoidectomy. His medical history revealed DMD diagnosed at the age of 3. Baseline creatine kinase (CK) levels were 9782 mg dL⁻¹, LDH 804 U L⁻¹. Minimal Patent Foramen Ovale (PFO, 1-2 mm) were identified in echocardiographic assessment.

The patient received 0.5 mg midazolam IV for premedication. Train-of-four (TOF) stimulation, bispectral index (BIS) and temperature were monitored additionally of standard intraoperative monitoring (ECG, NIBP and pulse oximetry). After preoxygenation, anesthesia was induced and maintained with IV infusion of propofol (10-4 mg kg⁻¹ h⁻¹) and remifentanil (0.05 mcg kg⁻¹ min⁻¹). Endotracheal intubation was performed after rocuronium 8 mg (0.4 mg kg⁻¹) IV. The duration of anesthesia was 35 min. Temperature was maintained at 35.8-36.4°C. End-tidal CO₂ was maintained at 28-36 mmHg. At the end of the procedure, neuromuscular monitoring showed first twitch reaction in the post-tetanic count (PTC 1), then administration of 80 mg sugammadex (4 mg kg⁻¹). The recovery time to TOF ratio of 90% was 160 s. The patient was extubated after 2 min. In the recovery room, he was observed 2 h. Residual block or vital signs abnormalities were not observed and that patient was discharged to the ward and went home the next day.

**Conclusion:** In these patients, prolonged recovery may result postoperative residual curarization (PORC) so that use of cholinesterase inhibitors has risk of recurarization. Sugammadex, rapidly and completely reverses the effects of the neuromuscular blocking agents rocuronium. Sugammadex use in these patients is investigated in the literature, only one case found (2). They found recovery time was 70 s, but we found recovery time as 160 sec, despite our use of rocuronium as 0.4 mg kg⁻¹ (use of less rocuronium but longer recovery time).

We have demonstrated that reversal of rocuronium-induced NMB by sugammadex in this DMD patient was provides recovery without side effect. The studies are required for determining effective sugammadex dose in DMD patients.

**References**


P-43

The Sevoflurane Induction and its Maintenance in the Retinopathy Premature Patients Who Laser Photocoagulation Have Been Applied

Yıldırım MB, Doğan E, Güzel A, Yıldırım ZB, Doğan E, Çatak O

Dicle University Anesthesia and Reanimation
Diyarbakır Children Anesthesia and Reanimation
Diyarbakır State Hospital Ophtalmology
Elazığ Fırat University Ophtalmology

Retinopathy of prematurity (PR) is a proliferative vitreoretinopathy as a result of vascular disorders of the retina that occurs in premature infants. Due to better results of laser photocoagulation in the treatment of PR, it has been a preferred method of treatment nowadays.

Objective: Sevoflurane allows recovery from anesthesia and faster induction because of low blood / gas solubility. Sevoflurane is faster in the control of the depth of anesthesia. This feature constitutes an advantage in providing airway management and induction with mask, and it is important in pediatric patients.

Methods: The records of 40 retinopathy of prematurity patients, who general anesthesia with sevoflurane induction were given and an operation was performed due to laser phototherapy, were analyzed retrospectively at the eye clinic of Faculty of Medicine, Dicle University between January 2012 and January 2014. After routine monitoring of patients with ECG, SPO₂, body temperature were done, patients, who are in the supine position about 5 minutes to 6% sevoflurane, were ventilated with mask. After allowing sufficient relaxation in patients, they were intubated with an endotracheal tube of appropriate size. Anesthesia was maintained with sevoflurane 2-3%. Preoperative, intraoperative, and postoperative patient characteristics were examined.

Results: The cases were 16 female patients (40%) and 24 men (60%). There were 6 out of 40 patients with twin pregnancies (15%) and 34 singleton pregnancy. The average of birthweek was 26.8±2 (23-32). The average birth weight was 1078±295 (g) (530-1900). The average treatment weight were found as 1720±690 (g) (820-4000). The average duration of oxygen therapy were found to be 41±21 days (10-90 days). 11 of 40 patients (25%) had been treated for RDS. PDA was present in 4 patients (10%). 1 patient (2.5%) had been diagnosed with sepsis-NEC.

In three intraoperative patients, desaturation and bradycardia, in one intraoperative patient only bradycardia, in four intraoperative patients tachycardia (heart rate >160, fentanyl with 1 mcg kg⁻¹ has been interfered), in one intraoperative patient a fever of 38.5 was developed. The mean duration of surgery was found to be 125 minutes (90-200 min). Laser photocoagulation was performed for these cond time in three patients. 1 mg kg⁻¹ of propofol was given to 5 patients, and rocuronium 0.5 mg kg⁻¹ was given to another 5 patients. Three of the patients who under went rocuronium could not be postoperative extubated. These patients were extubated on postoperative 2-3 hours by following only in terms of oxygen. A total of 7 patients (17%) could not be extubated postoperatively. 4 of them were under going treatment for RDS. 4 (36%) of 11 RDS patients could not be extubated. The need of postoperative mechanical ventilation for these patients was born. Desaturation was developed in 7 patients in postoperative operating table, and bradycardia was developed in the 5 of them. Six of the 7 patients who were desaturated, and four of the 5 patients who had bradycardia were RDS. Bradycardia was developed with desaturation in 54% of the RDS patients.

Conclusion: It is well known that anesthesia is a need during the diagnosis and treatment of PR and practice of anesthesia are known to be specific. However, an ideal reported method of anesthesia is not available. Frequently, selection of sevoflurane from inhaled anesthetics for balanced anesthesia in general anesthetics practices has advantage in the rapid control of the depth of anesthesia and it has no effect prolonged when anesthesia ceases.

P-44

Assessment of Oculocardiac Reflex in Different Pediatric Age Groups During Strabismus Surgery

Yıldırım A, Yüksel A, Aygıt ED, Karabulut G, Gökyiğit B
Beyoğlu Eye Research and Training Hospital, Anesthesiology
Beyoğlu Eye Research and Training Hospital, Ophthalmology

Objective: Oculocardiac reflex (OCR) which has an incidence between 14% to 90% occurs frequently during elective strabismus surgery. The aim of this study was to assess the incidence of OCR different pediatric age groups.

Methods: Three hundred pediatric patients, with ASA physical status I or II, aged 1-10 yr, were enrolled in this study. Patients were randomly allocated into two groups: Group 1 (1-5 years, n:150) and Group 2 (6-10 years, n:150). No premedication was given. Topical lidocaine drops were applied before anesthesia. Monitoring was consisted of ECG, pulse oximetry, and capnography. Anesthesia was induced with sevoflurane 8% and 50% N₂O in O₂. Laryngeal mask airways were placed without muscle relaxant. Anesthesia was main-
tained with 1-1.3 MAC of sevoflurane with 50% N₂O in O₂. All patients’ demographic data, surgery time, anesthesia time and number of muscles operated were recorded. Medial rectus muscle procedure was preferred as first intervention during surgery and heart rate changes were measured during this procedure. OCR was defined as a reduction in HR of >20% induced by traction of an extraocular muscle. HR were measured 30 seconds before extraocular muscle traction (HR1) and after traction (HR2). Percentage of changes in HR (∆HR) were calculated using the formula 100 x (HR1-HR2)/HR1. The degree of changes in ∆HR (<20%, 20-39% and ≥40%) were recorded. If the HR did not increase after relaxation of muscle, atropine 0.01 mg kg⁻¹ was administered. All results were expressed as means±SD or number (%). SPSS for Windows version 15.0 was used for the statistical analysis. The groups were compared using independent sample t-test and Fischer’s exact test; p value <0.05 was considered significant.

**Results:** The parameters such as sex, surgery time, anesthesia time and number of muscles operated were not statistically significant between groups. However age and body weight was found to be higher in group 2. ∆HR in group1 and group 2 (12.8±14.0% vs. 16.4±17.0%, respectively) were statistically significant (p<0.05). When we classified ∆HR (<20%, 20-39% and ≥40%) and compared between group 1 and 2, although ∆HR ≥40% in group 2 was higher than group 1 (11.3% vs. 5.3%), degree of changes in ∆HR were not statistically significant. The incidence of OCR (20.7% vs. 30%) were similar in between groups. Atropine was used in small percentage of patients in group 1 and group 2 (5.3% and 11.3%, respectively) and required atropine dose was not statistically significant between the two groups.

**Conclusion:** Incidence of oculocardiac reflex does not differ with age. However as age increases reduction in heart rate during strabismus surgery increases. Further studies with larger number of participants are needed to establish the relevance and usefulness of change in heart rate in different age groups.

**P-46**

**Evaluation of Cardiac Effects of Caudal Bupivacaine in Pediatric Patients with Holter Monitoring**

Candan N, Çelebi H, Şanlı C, Gündoğur İ, Olguntürk R
Gazi University Faculty of Medicine Department of Anesthesiology
Gazi University Faculty of Medicine Department of Pediatric

**Objective:** Children undergoing general anesthesia administered caudal bupivacaine in concentrations 0.25% and 0.20% were evaluated via Holter monitoring pre and post-operatively. The aim of the study was to evaluate the effect of different concentrations of caudal bupivacaine on cardiovascular function, postoperative motor block incidence and pain.

**Methods:** After approval of Local Ethics Committee and parental approval, 60 ASA-I children aged 1-8, undergoing subumbilical surgery were included in this study. Seven children were excluded because of inadvertent deletion of Holter recordings. Standart cardiac and Holter monitoring were applied. Anesthesia was induced and maintained with sevoflurane in 40% air/O₂ mixture and LMA was placed. Caudal block was achieved by 0.8 mL kg⁻¹ bupivacaine 0.25% (Group 1) or 0.2% (Group 2). Heart rate, systolic, diastolic and mean arterial pressure, SPO₂, MAC, ETCO₂ were recorded; PR, QRS, RR, QT, QTd, QTc, HRV Holter parameters were investigated.

**Results:** QT and QTc were not significantly different between the groups, but longer than normal children. Holter
parameters evaluating PR, QRS and HRV were similar between groups. Quality of postoperative analgesia and patient satisfaction were similar in groups. Motor deficit was less in Group 2 compared to Group 1.

**Conclusion:** Caudal block in children with 0.8 mL kg⁻¹, 0.2% bupivacaine is effective for perioperative and postoperative analgesia with minimal motor block; good patient and parent satisfaction. Holter monitoring reveals good autonomic maintenance and elongation in QTc due to direct cardiac effect of bupivacaine.

**P-47**

Anesthesia Experience in a Patient with Schwartz-Jampel Aberfeld Syndrome and Neurofibromatosis Type 1

Aybar RS, Meço BC, Özçelik M, Özatamer O

Ankara University

**Objective:** Schwartz jampel syndrome (SJS) condrodystrophic myotonia, is a rare, autosomal recessive, congenital disease. Muscle tissue is mostly affected and leads to a generalized myotonia. This causes joint contractures, short posture, mask-like face and vision disturbances. In affected patients the risks of allergic reaction to several medications, difficult airway and malign hyperthermia are high during anesthesia practice.

**Methods:** In this case we present our anesthesia management for a 16 years old boy with SJS, neurofibromatosis type 1 and schwannoma. The patient was scheduled for a microsuspension. After routine ASA monitorisation, anesthesia induction was performed with intravenous propofol 1 mg kg⁻¹, remifentanil 1 mg kg⁻¹ and rocuronium 0.3 mg⁻¹ kg⁻¹. Then, the airway was intubated without any difficulty with a suspension tube and anesthesia maintenance was performed with TIVA (infusion of propofol 50 mcg kg⁻¹ min⁻¹ and remifentanil 0.1 mcg⁻¹ kg⁻¹ min⁻¹).

**Results:** During the procedure the patient was followed up, especially for malign hyperthermia. No adverse event was observed and the procedure was done in 25 minutes. The patient was then extubated without any problem and was transferred to the ward after PACU follow up.

**Conclusion:** As a result, in all patients undergoing general anesthesia wary of malignant hyperthermia. Disorders of the skeletal system and muscle system increase the risk of malignant hyperthermia in the patient. The patients family history and pre-anesthesia history should be examined carefully. Anestesiologist must to take extra precautions for difficult intubation. Dantrolene sodium should be available in the operating room.

**P-48**

Ultrasonography (USG)-Guided-Transversus Abdominis Plane (TAP) Block vs. Caudal-Sacral Block in Paediatrics Undergoing Unilateral Lower Abdominal Surgery

Tombul M, Türk HS, Açık ME, İşıl CT, Turhan O, Ediz N, Akin M, Oba S

Erzurum Hınıs Governmental Hospital

Şişli Etfal Training and Research Hospital

Şişli Hamidiye Etfal Training and Research Hospital

**Objective:** TAP block provides efficient analgesia in adults undergoing major abdominal surgery, but its efficacy is still investigated in the paediatric population. In this study our aim was to investigate the postoperative analgesic efficacy of TAP block compared to caudal block in paediatrics undergoing unilateral lower abdominal surgery.

**Methods:** After obtaining local ethics committee approval and informed consent of the children’s parents, 60 patients ASA1 scheduled to undergo elective unilateral lower abdominal surgery were divided into two groups after anaesthetic induction: Group 1, USG-guided TAP-Block was performed with 0.3 mL kg⁻¹ 0.25% bupivacaine; Group 2, caudal block with 2 mg kg⁻¹ (dosage), 1 mL kg⁻¹ (volume), 0.5% bupivacaine. If haemodynamical changes indicating pain were observed, fentanyl 0.5 mcg kg⁻¹ was added. Total amount of fentanyl, anesthesia-operation duration and recovery time were recorded. Patients were observed for 24 hours postoperatively. FLACC-pain-score was noted at postoperative 0.1 and 2 hours. Rescue and additional analgesic requirements, nausea-vomiting, first analgesic time, total analgesic consumption were recorded. Rescue analgesic was 1 mg kg⁻¹ tramadol intravenously and paracetamol 15 mg kg⁻¹ orally administered when FLACC score was >4.

**Results:** Demographic variables, anaesthesia-surgery time, recovery time, HR, complications were not statistically significant different. Surgery began later and fentanyl consumption was higher in Group1. Additional analgesic consumption was similar in both groups. In Group 1 first analgesic requirement time was shorter. FLACC score was higher in Group 1 in all times.

**Conclusion:** This study indicated that caudal block provided better analgesia compared to USG-guided TAP block in paediatrics, who underwent lower abdominal surgery.
P-49

Reversal of Rocuronium-Induced Neuromuscular Blockade with Sugammadex in Neonates

Türk HS, İşıl CT, Sayın P, Kara T, Oba S
Bilecik Governmental Hospital
Şişli Hamidiye Etfal Training and Research Hospital

Objective: The rudimentary neuromuscular junction, the differences in drug distribution, and body volume in neonates change their neuromuscular conduction. These factors can cause late recovery and increased risk of postoperative residual curarization (PORC) in neonates, and create the need for a high dose neuromuscular blocker (NMB). Therefore, the need has emerged for new drugs to reverse NMB, such as sugammadex. There are not enough studies in the literature about sugammadex in neonates. In this study, we aimed to discuss NMB reversal, clinical extubation success and PORC incidence with sugammadex in neonates.

Methods: Records of patients ≤40 days old, who underwent abdominal surgery in our hospital’s paediatric-surgery-clinic, and received rocuronium for anaesthesia induction with sugammadex for NMB reversal between January-December 2012 were evaluated in this retrospective study. Patients monitored with TOF were included in the study. Age, gender, weight, total rocuronium dosage, total sugammadex dosage, operation-anaesthesia duration, time interval from last rocuronium dosage to NMB-reversal with sugammadex, time interval from sugammadex injection to extubation, TOF at extubation, complications were recorded.

Results: Data of 24 patients were included. Age was 10.29±11.80 days. There were 15 girls and 9 boys. Operation duration was 60.51±29.8 minutes, anaesthesia duration was 63.77±25.80 minutes. Rocuronium dosage was 2.6±1.5 mg, sugammadex dosage was 8.2±5.4 mg (equal to approximately 2 mg kg⁻¹). Time interval from last rocuronium dosage to NMB-reversal with sugammadex, time interval from sugammadex injection to extubation, TOF at extubation, complications were recorded.

Conclusion: This study showed that sugammadex for NMB reversal in neonates has similar efficiency compared to paediatric and adult patients. Sugammadex provides short and safe extubation in neonates, too.

P-50

Anaesthetic Management in Low Birth Weight Infants Undergoing Cardiac Surgery

Kocabaş S, Karaca N, Sahutoğlu C, Askar FZ
Ege University Faculty of Medicine, Department of Anaesthesiology and Reanimation

Introduction: Low birth weight infants usually have significant morbidities due to intrauterine growth retardation. The risk of cardiac or non-cardiac congenital anomalies necessitating surgery is higher in these patients compared with normal infants. In this series, our anaesthetic management in low birth weight infants with congenital heart defects undergoing cardiac surgery is presented.

Case Presentation: Ten low birth weight infants (<2500 grams) undergoing congenital cardiac surgery with general anaesthesia during a period of six months were included in this observational study. Demographic data, type and duration of surgery, duration of cardiopulmonary bypass and/or total circulatory arrest, amount of blood or blood products transfused, duration of mechanical ventilation, intensive care unit or hospital stay, morbidity and/or mortality were prospectively recorded. Ten infants (9 male, 1 female) diagnosed as cyanotic congenital heart disease with a mean age of 5.2±5.35 (1-18) days were included in the study. The diagnosis were as follows: hypoplastic left heart syndrome (n=4), transposition of great arteries (n=3), pulmonary atresia (n=2), abnormal pulmonary venous return (n=1). Seven patients underwent total correction with cardiopulmonary bypass; three patients required circulatory arrest. Shunting was performed in three patients. The weight and height of patients were 2.25±0.4 (1.3-2.5) kg and 48.1±3.07 (45-56) cm. The duration of surgery and anesthesia were 196±181 min and 244±90 min, respectively. The duration of intensive care unit and hospital stay were 335±295 hours and 16±12 days. The amount of blood/blood products transfused were as follows: erythrocyte suspension 198±169 mL; fresh frozen plasma 123±100 mL; thrombocyte suspension 75±60 mL. Two patients died intraoperatively due to poor contractile function after bypass. One patient required ECMO support after weaning from bypass. There were seven postoperative deaths, all due to cardiac dysfunction. One patient was successfully extubated and discharged from the hospital in good health.

Conclusion: The anaesthetic management of low birth weight infants undergoing congenital cardiac surgery is a challenge for the anesthesiologist. The incidence of mortality in this patient group remains high, despite the advances in surgery and anaesthesiology.
Oral Ketamine Administration for Radiation Therapy in Children

Doğan E, Zincirioğlu SB, Güzel A, Arslan MŞ, Çelik F, Yıldırım B, Baysal-yıldırım Z
Dicle University Medical Faculty Department of Anestesiology and Reanimation
Dicle University Medical Faculty Department of Oncology
Dicle University Medical Faculty Department of Pediatric Surgery
Diyarbakır Childrens Hospital

Objective: Radiotherapy is a reliable and effective method used for both curative and palliative / prophylactic ends in the treatment of different malignancies. In order to achieve accuracy, reliability and success in the implementation of radiotherapy, it is imperative for the patients to adapt to the treatment and remain motionless.

Methods: In this study, the records of anesthetic agents utilized 26 patients who aged 2-10 being treated by External Beam Radiotherapy have been examined.

Results: Radiotherapy under anesthesia has been implemented in a total of 56 sessions of the 26 patients included in the study. During the radiotherapy applications only 10 (17%) sessions required the use of an extra dose of ketamine. The radiotherapy session duration was 6.3±2.4 minutes [The anesthesia start time was 20.5±4.6]. Additionally, the patients’ recovery time from anesthesia was found to be 68.6±6.2. It is seen that 61.5% of the patients have been administered prophylactic cranial radiotherapy due to acute lymphoblastic leukemia (ALL). Before and after the procedure, hemodynamic and respiratory parameters have been seen to proceed stable.

Conclusion: Since oral ketamine and midazolam combination provides effective sedation and comfort, and can be administrated easily, we believe that it can be safely used in radiotherapy procedures in children.

Suicide Attempt Due to Uncontrolled Use of Pseudoephedrine in Puberty: A Case Presentation

Uçkun S, Kuzucuoğlu T, Gergerli R, Çevik B
Dr. Lütfi Kırdar Kartal Training and Research Hospital, Clinic of Anesthesiology and Reanimation

Introduction: Pseudoephedrine is used as active ingredient in symptomatic treatment of flu. Its use is generally quite safe when used in recommended dosages. A 12-year old female child in whom self-destructive behavior developed due to uncontrolled medication use has been presented.

Case Presentation: The 12-year old female child without a known systemic disease has jumped from the third floor after she had drunk a cough syrup including pseudoephedrine for upper respiratory tract infection without informing her family. The patient was brought urgently to our hospital. Her first examination revealed Glasgow Coma Scale (GCS): 13, IR+/+, isochoric, TA:110/70 mmHg, PHR:117/min, rhythmic, bilaterally equal breath and natural sounds, respiration rate: 14/ min, comfortable abdomen as well as spontaneous respiration and urine output are present. Computed brain tomography (CBT) detected parietooccipital fracture line and diffuse brain edema while graphy revealed left proximal humerus and scapular fractures. The fractured extremity was bandaged.

The patient was transferred to Intensive Care Unit and orotracheally intubated by administering 5 mg kg⁻¹ thiopental sodium, 50 mcg fentanyl citrate and 0.5 mg kg⁻¹ rocuronium bromide. Mechanical ventilation was initiated on SIMV/VC mode (TV: 5 mL kg⁻¹, f:16/min, PEEP: 3 cm H₂O, PSV: 15 mmHg). Sedoanalgesia was initiated by administering 3 mg hour⁻¹ midazolam and 0.5 mcg kg⁻¹ min⁻¹ remifentanil infusion. Additionally, Mannitol 2 g kg⁻¹ and levetiracetam 25 mg kg⁻¹ were applied. The patient was self-extubated in the 2nd admission day. CBT demonstrated the continued brain edema. The desaturated patient was re-intubated. An improvement was monitored in the 5th admission day. The patient was switched up to weaning. The patient with GCS: 14 and stable hemodynamic status was transferred to the Neurosurgery Service.

Discussion: The child patient that demonstrated development of myoclonic motion due to uncontrolled use of pseudoephedrine has been presented (1). In addition, it has been suggested that it is a hallucinatic medication when used by inappropriate dosages (2).

Conclusion: We conclude that parents may prevent their children from life-threatening behaviors by being aware and
also informing their children about medication for children’s use.

References

P-53

Hemodynamic Status at the Stages Combined Anesthesia with the Use of Propofol in Children

Agzamkhodjaev T, Salikhodjaev SH, Kholmukhammedov B, Ismoilova M, Gazyev B

Clinic of Tashkent Pediatric Medical Institute

Objective: Currently surgeon perform various invasive diagnostic interventions that do not require total muscle relaxation, but need for effective and safe methods of general anesthesia with preserved spontaneous breathing. The purpose of our study was evaluation of central hemodynamics parameters during general anesthesia with intravenous Propofol in children with low-impact surgery.

Methods: We examined 122 children aged from 1 to 7 years (mean age 3.6±1.5 years) were hospitalized in the clinic of TashPMI the period 2005 to 2010, about various surgical pathologies. All patients underwent total intravenous anesthesia (TIVA) using Propofol. Premedication consisting of atropine sulfate 0.1%-0.01 mg kg⁻¹, valium 0.5%-0.3 mg kg⁻¹, ketamine 5%-3 mg kg⁻¹ was administered 15 minutes prior to surgery intramuscularly. For an objective assessment of central hemodynamics was used method Echocardiography (Aloka SSD -260; probe 3.5 MHz) with the analysis of End-diastolic (EDD) and End-systolic diameters (ESD) of the left ventricle, as well as the RR interval. Systolic blood pressure (SBP), Diastolic blood pressure (DBP), the Mean arterial pressure (MAP), oxygen saturation (SaO₂), heart rate (HR) was determined using the monitor PROTOCOL-102E (USA).

Results: Analysis of the results showed that the original values of the studied parameters during TIVA are within the physiological values. During the procedure and in the early postoperative period the following changes of the studied parameters: After premedication was a statistically significant increase in SBP, DBP, MAP, HR (an average of 8-12%, p<0.05). At the stages of induction and maintenance of anesthesia noted a gradual decline of above mentioned parameters. By the wake up period SBP, DBP, MAP was decline in the 14%, 14% and 10% respectively, and reached baseline. SV and SI remained at initial values during anesthesia.

Conclusion: Anesthesia using Propofol combined with Ketamine ensures adequate protection of children from stress caused by less traumatic surgical interventions. The combination of Propofol with Ketamine allows smoothing some of their undesirable hemodynamic effects.

P-54

Use of Ultra-Short-Acting Beta-Blocker’s Esmolol (Breviblok) After Cardiac Surgery in Children

Salikhodjaev SH, Islamov N, Abdurhmonov H, Khaydarov K, Yusupov A

Clinic of Tashkent Pediatric Medical Institute

Objective: Among the many agents used for prevention and treatment of activation sympathoadrenal system, is clinically justified use of beta-blockers. The most promising of these is the class II antiarrhythmic, selective beta-blocker Esmolol (Breviblok), manufactured by Bristol-Myers Squibb, USA. To determine the efficacy and safety of postoperative use of Esmolol after cardiac surgery in children.

Methods: We examined 13 children aged 0.7 to 4 years who underwent cardiac surgery in pediatric cardiac surgery department of clinic TashPMI. Indication for Esmolol was supraventricular tachycardia at SBP at least 70 mmHg. The drug was administered at a mean bolus dose 0.7±0.3 mg kg⁻¹, with continuously monitored ECG, HR, BP, CVP.

Results: Esmolol slow bolus administration at dose 0.3-0.5 mg kg⁻¹ was effective against tachycardia, a more than 95% of patients. Slowing of the HR occurred at 1 minute after injection, reaching maximum values for 5 minutes. The findings showed safety of Esmolol in patients not only in hyperdynamic reaction accompanied by an increase of CO and SI, but also in patients with reduced performance of the heart. Selection of the optimal safe dose of Esmolol for bolus depended on haemodynamic status. For the treatment of hypertension in the absence of tachycardia Esmolol dose is 0.3-0.5 mg kg⁻¹. For relief of tachycardia and hypertension on a background of increased cardiac performance, Esmolol bolus dose can be increased to 1 mg kg⁻¹. Infusion of Esmolol in a dose of 50-200 µg kg⁻¹ min⁻¹ helps to prolong adrenergic blockade.

Conclusion: The results of the observations (n=13) allow us to recommend a selective β-blocker Esmolol for dosed regulation of rhythm disturbances and blood pressure after cardiac surgery.
**P-55**

Management of Spinal Anesthesia in a Patient with Osteopetrosis

Avcu R, Tüfek A, Akelma H, Doğan E, Yüksel MU, Baysal Yıldırım Z

Dicle University Medical Faculty Department of Anesthesiology and Reanimation

**Introduction:** Osteopetrosis is a disease characterized by increased bone density with growth retardation, narrowed nasal passages, central nervous system symptoms, and hepatosplenomegaly and it was defined for the first time in 1904. The earliest symptoms include; macrocephaly, growth retardation, anemia, hepatosplenomegaly, prominence in the frontal bone, hypertelorism, flattened nose, and blindness and deafness as a result of compression of the cranial nerves.

**Case Presentation:** A 16 year old female patient who was planned to undergo an elective operation, for left femur fracture was evaluated as ASA II and Mallampati 4 in premedication before surgery. The patient's thyromental distance was below 6.5 cm. Her consciousness was alert with medium general condition and laboratory findings were normal. (HTC:33, PLT:343.000,PTZINR:1.02). Suitable airway, laryngeal masks, and intubation laryngoscope for difficult conditions were kept ready because of the expected difficulties in ventilation and intubation. Patient was first planned to receive regional anesthesia. Standard anesthesia monitoring was applied. Single shot technique with 26-gauge sharp-edged spinal needle was performed under sterile conditions. 15 mg hyperbaric bupivacaine was administered. Midazolam 2 mg was administered intravenously for the patient's agitation. 3 L/min oxygen was given through mask. There was no hemodynamic and respiratory complication during the surgery.

**Conclusion:** Difficult ventilation-intubation or even tracheostomy may be required during general anesthesia in patients with osteopetrosis. Regional anesthesia may be preferred under appropriate conditions.

---

**P-56**

Management of Anaesthesia in a Pediatric Patient with Giant Hydrocephalus

Çolakoğlu S, Bombacı E, Gergerli R

Dr. Lütfi Kırdar Kartal Training and Research Hospital Department of Anesthesiology and Reanimation

**Introduction:** Ventriculoperitoneal shunt operations are the most frequently performed interventions in pediatric neurosurgery. In this paper emergency anesthetic management due to increased intracranial pressure in a pediatric patient undergoing revision surgeries for her giant hydrocephalus is presented.

**Case Presentation:** A 16 month-old girl, with congenital hydrocephalus having head circumference of 62 cm. who had previously treated with ventriculoperitoneal shunt surgery was admitted for shunt malfunction was prepared for surgery. Due to intracranial hypertension, her physical examination revealed somnolence, and decreased airway reflexes, decreased in tonus and breath sucking and increase in respiratory tract secretions. In the operating room. she was immediately warmed with blanket, hydration was started. In order to avoid the possible complications of induction of anesthesia, transepidermal puncture with CSF drainage from the surgical team was asked to be done. Following the evacuation of about 40 mL CSF, she became more alert. Induction of anesthesia was started through mask with sevoflurane 5-8% in 50% air-oxygen mixture. She was intubated with spiral tube no:3, after ensuring adequate depth of anesthesia and her body was positioned upwards for the laryngoscopy avoiding the use of any muscle relaxant. Cormack score was 2. Anesthesia was maintained with sevoflurane concentrations of 1.5-2%. Surgical anesthesia was terminated at the end of surgery lasted for about 30 minutes. Following strengthened and adequate spontaneous respiratory movements the patient was extubated. Strong sucking reflex was observed. Body temperature and peripheral oxygen saturation values were also in normal range in the recovery room for about 40 minutes and then she was transferred to the Neurosurgery ward.

**Conclusion:** Pediatric patients with giant hydrocephalus, macrocephaly can cause adverse effects in maintaining secure airway. Another problem may be existance of intracranial hypertension which requires emergency intervention and attentive. CSF drainage, correcting the child's neurological status dramatically prior to induction of anesthesia, has also contributed to the smooth completion of anesthesia management.

---

**P-57**

Safe Anesthesia for Pediatric Radiation Theraphy

Yıldırım I, Agaoğlu FY, Tütüncü AC

İstanbul University Cerrahpasa Medical Faculty
İstanbul University Institute of Oncology

**Objective:** We sought to determine the incidence of anesthesia-related complications in children undergoing radiation therapy and the associated risk factors.
**Methods:** We retrospectively investigated the incidence and types of anesthesia related complications and examined their association with age, weight, oncology diagnosis, type of anesthetic (propofol vs. propofol and adjuncts), total dose of propofol and type of radiotherapy procedure (simulation vs. radiation treatment).

**Results:** Between May 2012 and November 2013, propofol was used in 545 procedures (490 radiation sessions and 55 simulations) in 54 patients. Complications occurred during 18 anesthetic sessions (3.3%). The complications were desaturation, apnea and hemodynamic changes. Hemodynamic changes were the most common. No advanced airway intervention such as endotracheal intubation and no other medication were required for hemodynamic changes. In chi-square analysis, two factors were significantly associated with the risk of complications: use of propofol alone (vs. adjunct agents; p=0.032), non brain tumors (vs. brain tumors; p=0.035). Total dose of propofol, type of radiotherapy procedure, age and weight were not significantly associated with the frequency of complications.

**Conclusion:** The rate of anesthesia-related complications was low (3.3%) in our study. Significant risk factors were type of anesthetic (propofol vs. propofol and adjuncts) and oncology diagnosis.

---

**P-58**

**Difficult Airway Control in a Newborn Patient with Oropharynx Mass**

Özkan AS, Uçar M, Erdoğan MA, Firat C, Yücel A, Durmuş M

**Inönü University Faculty of Medicine**

**Introduction:** Management of the difficult airway in an newborn is a serious problem for the anesthesiologist. Anatomic differences of newborn upper airway and the presence giant oropharyngeal mass presents additional challenges to tracheal intubation. We present the successful use of a tracheal tube intubation stylet as a rescue device in 10 day newborn difficult airway due to giant oropharyngeal mass and resulting in a Cormack and Lehane grade 3 view maintain spontaneous ventilation.

**Case Presentation:** The newborn was scheduled for excision of the giant oropharyngeal mass through an oral approach under general anesthesia (GA). The Patient was born by caesarean section in term as 2850 grams, had history of minimal inspiratory stridor and dyspnea and giant oropharynx mass (9x6x4.5 cm) which invaded the maxillary sinus and eye detected by computed tomography. On preanesthetic evaluation, the newborn was found to have oropharyngeal mass overflowing from the mouth. Her neck movement and all other investigations were normal. It was considered to be difficult airway due to the oropharyngeal mass. In the operation room, electrocardiography (ECG), heart rate(HR), pulse oximeter (SpO₂) and non-invasive blood pressure (NIBP) were monitored and an intravenous (IV) line secured without GA. Vital signs were measured with HR: 160 beats/minute, SpO₂: 97%, NIBP: 60/35 mmHg. Fiberoptic bronoscope, tracheal tube intubation stylet, laryngeal mask, emergency tracheostomy set and small number of endotracheal tubes were prepared. 100% O₂ was given for preoxygenation in 5 minutes. A nasal catheter was inserted and oxygen flow was started at 2 l-min. Propofol (bolus) 0.1 mg kg⁻¹ was titrated to maintain spontaneous ventilation. It was decided to proceed with direct laryngoscopic intubation with intubation stylet for pre-forming tracheal tubes to the desired shape to facilitate intubation. Direct laryngoscopy was performed with Miller blade by the conventional midline approach the end portion of vocal cord could be visualized. Tracheal intubation was done successfully using an inner diameter of number 2.5 endotracheal tube mounted over an intubation stylet and it was confirmed by capnography.

**Conclusion:** We thought that many clinicians are unannounced of the benefits of tracheal tube intubation stylet and could suggest further studies to increase its using in elective and emergency situations. This technique could be considered as alternative device for managing difficult airway in newborns.

---

**P-59**

**Difficult Airway Management in Anencephalic Infant Child**

Çekiç B, Ulusoy H, Beşir A, Karatepe E, Sancaktar N, Yalçın S

**Department of Anesthesiology and Critical Care, Karadeniz Technical University, Faculty of Medicine**

**Department of Pediatric Surgery, Karadeniz Technical University, Faculty of Medicine**

**Introduction:** Neural tube defects (NTDs) are the second most common birth defects after cardiac anomaly. In the World 0.5-2/1000 pregnant are affected by NTD (1). Open lesions affecting brain (anencephaly and craniorachischisis) are fatal at birth and after than. At the beginning cerebral hemispheres may develop. Brain stem and cerebellum may be protected (2). They may have spontaneous respirations (3). We discussed anesthesia method used during opening of percutaneous endoscopic gastrostomy (PEG) in an anencephalic child with wide cleft palate and lip.

**Case Presentation:** PEG operation was planned to the anencephalic 5 months old, 5800 gr of male child because he could not be fed orally since he was born. In his preoperative
Evaluation of partial cranial defect, cerebrum in dysmorphic appearance, hypoplastic brainstem, wide cleft palate and lip was detected and it was determined that there was no left orbital bone. Examination of cardiorespiratory system was normal.

He was premedicated with 0.12 mg of atropine im after 4 hours of fasting. We considered that it would be difficult airway due to wide cleft palate and lip defect. Oral airway, tracheal tube, stylet, laryngeal mask was prepared with different sizes. Rigid fibroscope and tracheotomy set with appropriate diameter was kept ready. Spontaneous inhalation induction of anesthesia was scheduled following standard monitoring.

Preoxygenation was applied before mask inhalation induction was performed with 1%-8% sevoflurane in 100% O₂. Anesthesia deepened with 2 mg kg⁻¹ propofol, 1 µg kg⁻¹ fentanyl iv and 0.6 mg kg⁻¹ Rocuronium iv was administered. Direct laryngoscopy was performed after optimum head and neck position was maintained. Glottis was seen and he was intubated with tube 3 mm internal diameter. Anesthesia was continued with 3.2% sevoflurane in 50% O₂/air. At the end of the operation that continued for 35 minutes decurarisation was proceeded with 4 mg kg⁻¹ Sugammadex iv. When child’s spontaneous respiration was sufficient he was extubated and was taken to recovery room. When the patient was hemodynamically stable during 1 hours of follow-up in post-anesthesia care unit, he was sent to the related service in company with the doctor.

Conclusion: The two most common types of open NTDs are anencephaly and spina bifida (4). In anencephalic newborns where brain and skull is affected if additional malformations like cleft palate and lip is also seen morbidity and mortality increase. Anencephaly and difficult airway coexistence during anesthesia is a rare condition. Alternative techniques are needed to open airway and intubation in these patients.

References


Sedation for Gastroscopy in an Infant with Laryngomalacia: Case Report

Sayın P, İşıl CT, Kızılkan N, Adaç C, Oba S
Şişli Hamidiye Etfal Training and Research Hospital

Laryngo-tracheomalacia is a rare yet serious condition associated with high mortality and often requires prolonged intubation and mechanical ventilation. It is the most common congenital abnormality of larynx and most common cause of noninfective stridor in children appearing few weeks to months after birth, more in inspiration, crying and supine position. Airway management of these patients is challenging with risk of total airway obstruction.

In this case report we present a 5300 gr weighing, 7 months old male infant with the diagnosis on laryngomalacia, atrial-septal-defect, hiatal hernia, history of recurrent pneumonic infiltrations and intensive care admission. Because of early postprandial vomiting and suspicion of esophageal stricture, a gastroscopy procedure was done before without anaesthesia. However, the infant developed cyanosis and the procedure had to be abrupted. The second attempting was scheduled to be performed under anaesthesia. Standard monitorization with ECG and SpO₂ was done, a catheter 26 Gauge was inserted into the right antecubital vein, oxygen supplemental was given with nasal O₂ at flow rate 6L/min and the patient was positioned to left lateral decubitis. Premedication was done with midazolam 0.02 mg kg⁻¹ and for anaesthesia induction ketamine 2 mg kg⁻¹ was injected. No additional medication was required during the procedure. The procedure lasted 6 minutes, recovery time (Aldrete-score-9) was 20 minutes. Although no apnea was observed during the procedure, apnea occurred in the recovery time and was managed by jaw hanging maneuver and tactile stimulation. The patient was desaturated (SpO₂<90%) two times. After recovery the patient was observed for further 10 minutes and transferred to the paediatric servis.

Gastroscopy under anaesthesia for infants is safer than gastroscopy without anaesthesia.
P-61

Airway Challenge in a Child with Cervical Pott’s Disease Leading to Atlanto-Axial Dislocation

Chelani R
PD Hinduja National Hospital, Mumbai

A 11-year-old boy weighing 35 kg was admitted with neck pain since 1 year, which worsened with movements. He also had neck rigidity, odynophagia (difficult swallowing), and fever from 1 month. On examination he was having torticolis, painful neck movements and motor power 4/5. On investigations he was found to have atlanto-axial dislocation and spinal cord compression secondary to cervical Pott’s disease.

Patient was put on traction under GA with midazolam, fentanyl and ketamine. A cervical collar was also applied to stabilise the neck. Child was scheduled for cervical spine fixation 5 days later.

On day of surgery, hard collar and traction were maintained. After premedication with glycopyrrolate 0.2 mg, midazolam 1mg and Fentanyl 40 mcg through indwelling intravenous cannula, inj. Ketamine 40 mg was given to anaesthetise him for passage of a 5.0 uncuffed nasal tube through one nostril which was connected to anaesthesia breathing circuit and patient was spontaneously breathing oxygen in air and sevoflurane to maintain adequate depth of anaesthesia to facilitate fiberoptic intubation. A 5.5 cuffed portex endotracheal tube was mounted on paediatric fiberoptic bronchoscope which was passed through the other nostril. After visualization of vocal cords, 2% lignocaine was instilled through port of fiberoptic bronchoscope before advancing the fiberoptic bronchoscope down to carina. Mounted endotracheal tube was railroaded in to the trachea. After confirmation of proper placement of tube with ETCO₂, muscle relaxant was administered. Cervical spine was fixed with plate and screws.

Child was extubated at the end of surgery and shifted to ICU. Six days later postoperative MRI revealed occipitocervical fixation with normal signal and morphology of cervical spinal cord. Cord compression was no longer visible.

Patience, expertise in fiberoptic bronchoscopy and cooperation from surgeon form a triad of success to overcome the challenge of difficult airway in paediatric patients with unstable cervical spine.

References

Our Anesthesia Experience with Pfapa Syndrome

Babayiğit M, Kurtay A, Güleç H, Tutar ZB, Alkan A, Horasanlı E
Keçiören Training and Research Hospital, Clinic of Anesthesiology and Reanimation

PFAPA (Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis) Syndrome is a periodic fever syndrome which is characterized with high fever, sudden onset of high fever, aphthous stomatitis, pharyngitis, and cervical lymphadenopathy (1). Treatment options include steroid treatment and adenotonsillectomy (2).

Adenotonsillectomy was advised to our two-year-old patient who had diagnosed with PFAPA Syndrome. He had no medical treatment. In preoperative evaluation, he had several (8-10) recurrent episodes of high fever (40°C). On physical examination, he was in a good general condition, his body weight was 11 kg, his blood pressure was 85/45 mmHg, his pulse was 105 at min⁻¹, and his body temperature was 37.1°C. His routine laboratory investigations were unremarkable. After oral premedication with 0.4 mg kg⁻¹ midazolam, he was taken to the operating room and ECG, noninvasive blood pressure, oxygen saturation and axillary temperature monitoring were performed. Following preoxygenation, intravenous prednol (10 mg), ranitidine (10 mg), and lidocaine (10mg) were administered. After induction of 2 mg kg⁻¹ propofol, and 1mcg kg⁻¹ remifentanil, he was intubated. Maintenance of anesthesia was maintained with sevoflurane 2.5% in 50/50% of N₂O/O₂. During the operation, while vital signs were stable, body temperature fluctuated between 36.5 to 36.70°C. Aldrete score smoothly extubated patients were extubated after 9. The patient was extubated seamlessly. After we saw that aldrete score was 9, he was transferred to the service. For postoperative analgesia, i.v. 110 mg paracetamol was given. Since the patient had no complication in the postoperative period, he was discharged in the 24th hour.

PFAPA syndrome patients should be monitored for high fever for the safe anesthesia and caution should be exercised against upper respiratory tract complications.

References

Anaesthetic Management of a Premature-Neonate with Giant Polycystic Kidney

Dobrucalı H, İşıl CT, Kılınç L, Gezici S, Ekşiöğlu B, Oba S
Şişli Hamidiye Etfal Training and Research Hospital

Autosomal recessive polycystic kidney disease (ARPKD) is a hereditary renal cystic disease including ectasia of renal collecting and hepatic biliary ducts and fibrosis of both the liver and kidney with estimated incidence of 1 in 20,000 to 1 in 40,000 live births. In 30-50% of ARPKD cases, disease onset is during gestation, and patients are born with symmetrically large kidneys, showing ectasia of the renal collecting ducts. One-third of patients die during early childhood because of respiratory and/or renal dysfunction.

In this case, we report a 33-days-old premature-neonate, born at 32. week of pregnancy with spontan-vaginal-labour, 2700 gr weight, APGAR-score3, diagnosed on bilateral polycystic kidney disease accompanied by intracerebral aneurysm and hypertension due to the disease, which was admitted to the neonatal-ICU. The patient was orotracheally-intubated (OTI) soon after birth because of respiratory-distress and received peritoneal-dialysis. Because peritonitis developed, intraabdominal pressure increased due to the giant mass and even peritoneal dialysis could not be done anymore, paediatric surgeons decided to remove the giant kidneys.

The patient was admitted to the operation room under midazolam sedation and OTI with a mild-metabolic-acidosis, pancytopenia, coagulation-disorder, hypoalbuminemia, renal-hepatic-enzyme elevation. He was ventilated with TV10 mL kg⁻¹, frequency 32/min and monitorized with SpO₂,ECG-thermometer-probe. Anaesthesia induction was done with 1 µg kg⁻¹ fentanyl+2 mg kg⁻¹ propofol+0.5 mg kg⁻¹ remifentanil, he was intubated. Maintenance of anesthesia was maintained with sevoflurane 2.5% in 50/50% of N₂O/O₂. During the operation, while vital signs were stable, body temperature fluctuated between 36.5 to 36.70°C. Aldrete score smoothly extubated patients were extubated after 9. The patient was extubated seamlessly. After we saw that aldrete score was 9, he was transferred to the service. For postoperative analgesia, i.v. 110 mg paracetamol was given. Since the patient had no complication in the postoperative period, he was discharged in the 24th hour.

Anaesthetic considerations included respiratory-difficulty, dose-adjustment of anaesthetic drugs, volume overload and afterwards falling back in volume because of giant mass excision, but careful anaesthesia precluded haemodynamical-instability.

References
P-64

Total Intravenous Anesthesia for a Child with Prune-Belly Syndrome

Özbilgin Ş, Küçüköztäß B, Olgu ner Ç
Dokuz Eylül University, School of Medicine, Department of Anesthesiology and Reanimation

Introduction: Prune belly syndrome (PBS) is characterized by deficient or absent abdominal wall musculature, ecstasia of uriner system and bilateral intraabdominal testes. Many other associations (pulmonary hypoplasia, renal insufficiency, cardiovascular and musculoskeletal) have also been reported. The incidence of this syndrome at male is 3.76: 100.000 live births (1). However, reports that are related with anesthesia management are surprisingly less than expected (2). To the best of our knowledge this is the first case whose anesthesia management was achieved with total intravenous anestesia without neuromuscular blocker agent.

Case Presentation: A 17-month-old male infant weighing 7.7 kg was scheduled for left orchidopexy, bilateral inguinal exploration and cystoscopy under general anaesthesia. He was born at 31th gestational week by C/S and hospitalized in intensive care for 72 days because of pulmonary hypoplasia. He has posterior urethral valve, vesicourethral reflux, bladder dysfunction and chronic renal insufficiency. Physical examination revealed prune-like abdominal wall, micrognathia, hooknose and low set ears. The patient’s laboratory values showed creatinine 1.16 mg dL-1 and BUN 44.8 mg dL-1. Other laboratory values were within the reference ranges. We planned general anesthesia with endotracheal intubation because of expected operation time longer than 2 hours. The patient was admitted to the operating room with intravenously 0.5 mg midazolam for premedication, ECG, peripheral O 2 saturation (SpO 2) and non-invasive blood pressure, temperature monitoring were applied. Anesthesia was induced with iv 20 µg kg-1 atropine, 2 µg kg -1 fentanyl and 2.5 mg kg -1 propofol. Neuromuscular blockers (NMB) were not used. Remifentanil 0.1 µg kg -1 min and 6 mg kg -1 hr propofol infusions were started even after induction. The patient was intubated at first attempt. The vocal cords was open and no reaction to intubation. Anaesthesia was main- tained by remifentanil (0.2-0.7 µg kg -1 min) and propofol (4.8 mg kg -1 hr) infusions. Hemodynamics was stable during surgery. Operation time was 305 minute. Caudal block was performed for analgesia. When the infusions stopped the patient was extubated succesfully after 8 min. No complica- tions were observed at PACU and the patient discharge from hospital at 2nd day.

Conclusion: PBS is a rare situation. Avoiding the neuro- muscular blockers may be important reducing respiratory difficulties at the perioperative period. If intubation is neces- sary, we suggest that TIVA can be used safely without NMB for surgery in patients with prune-belly syndrome especially long operation time.

References

P-65

Case Report: Congenital Hip Dislocation and Anesthesia Management

Ustalarözgen ZS, Toraman F, Aci1 M, Limon V, Durmaz S, Erkek E, Bulcak V, Kocaoglu B
Department of Anesthesiology and Reanimation, Acıbadem Kadıköy Hospital
Department of Anesthesiology and Reanimation, Kadıköy Acıbadem Hospital
Department of Orthopedics and Traumatology, Medical Faculty, Acıbadem University

Introduction: Congenital hip dislocation is a common anomaly of mismatch between the head of femur and acetabulum. The correction of the hip dislocation is one of the most serious pediatric orthopedic operations and might cause postoperative pain lasting days after surgery. In this report of our three patients, the management of anesthesia and control of postoperative pain during the correction surgery of congenital hip dislocation is discussed.

Case Presentation: Infant I, II and III

Three, 3.5 and 5 years old, female patients, weighing 15, 17, and 19 kg, successively had been admitted to the hospital for bilateral osteotomy surgery. In the preoperative evaluation of the patients, no additional anomalies were defined, were ASA I and Mallampati I. They had been premedicated with midazolam 0.5 mg kg -1 for premedication, ECG, peripheral O 2 saturation (SpO 2) and non-invasive blood pressure, temperature monitoring were applied. Anesthesia was induced with propofol 2.5 mg kg -1 i.v. fentanyl 3 mcg kg -1 i.v. muscle relaxation by rocuronium bromide 0.6 mg kg -1 i.v. An arterial line and urinary tube (8F) had been placed. An epidural catheter (22G) had been placed through Touhy 20 G needle. The catheter had been tunnelized and stabilized under the skin. An epidural bolus of bupivacaine 10 mg and fentanyl 40 mcg in 8 mL were given before the surgery had started. An epidural infusion of
bupivacaine 1.25 mg mL⁻¹, fentanyl 1 mic mL⁻¹, 3.5 mL h⁻¹ had been continued throughout the surgery. Anesthesia had been maintained by 10 mL h⁻¹ propofol i.v. and remifentanil 10 mic kg h⁻¹ i.v. infusion. The peroperative systolic BP had been 35-58/mmHg, diastolic BP 62-105/mmHg, HR had been 82-168/min, SpO₂ 97-100%. The durations of the operations were 6 h, 5.5 h, and 8 h successively. At the end of the surgery, muscle relaxation had been reversed and the patients had been extubated as soon as their spontaneous ventilation had been sufficient. The patients were painless at the end of the surgery and the epidural bupivacaine/fentanyl infusion had been continued until postoperative 4th day.

Conclusion: Serious postoperative pain may complicate the congenital hip dislocation operations. Epidural anesthesia applied as soon as the induction both increases the peroperative and postoperative anesthesia and analgesia quality of the patients.

P-66
Difficult Airway and Hyperthermia During Anesthesia Managements of Oncologic Pediatric Patient-Case Report
Ankara Children’s Hematology-Oncology Research and Training Hospital Department of Anesthesiology and Reanimation
Ankara Children’s Hematology-Oncology Research and Training Hospital Department of Pediatric Surgery
Ankara Children’s Hematology-Oncology Research and Training Hospital Department of Radiology

Introduction: Pediatric airway management is great challenge. Cervical and mediastinal masses exaggerates complexity. Furthermore, malignant hyperthermia (MH) is rare but potentially life-threatening complication that can occurs certain general anesthetics. We intended to describe these anesthetic difficulties during in two separate operations of the same pediatric patient.

Case Presentation: Four-year-old boy, weighing 12 kg, presented to oncology department with multiple cervical and mediastinal masses diagnosed as lymphoma. He had increased expirium, tachypnea, tachycardia. Multiple neck LAP were detected during medical examination. In laboratory, anemia, high sedimentation rate, increased wbc count were present. In radiology, mediastinal masses (pressing on right atrium and superior vena cava) were noticed. Thoracocentesis, renal biopsy was planned.

At the preoperative visit, he was graded ASA IV and Mallampatti III. Neck movements weren’t restricted. Local anesthesia with sedation was planned to secure ventilation.

Patient was not pre-medicated. He was very anxious-crying in the tripod position, sitting up with his hands outstretched on operation table. Propofol was titrated for enough sedation level. Sedation was achieved by 50 mg of propofol but spontaneous breathing had stopped. Positive pressure ventilation with mask was hardly achieved. Saturation was 92-96%. Tachycardia was present. For renal biopsy prone position and endotracheal intubation were needed. No difficulty/complication occurred during intubation. Extubation became very complicated. Awakening of patient and emergence took longer time. Theophylline was administered both intravenously and by inhaler to relieve bronco-laryngospasm. Prednisolone was given for airway edema. He was extubated. There were increased retractions, audible noise during inspirium and expirium. After confirming adequate breathing, patient administered ICU. Negative pressure pulmonary edema did not occur. Postoperative period was normal. Eight days later, anesthesia was needed for port implantation. Ketamine was preferred for secure airway, spontaneous breathing. Body temperature increased after induction. Axillary temperature was above 38°C. Flushing was present. Because patient’s symptoms were not definitive for malignant hyperthermia, the operation was not aborted. Other vital signs were normal. Rigidity, hypertonicity, cyanosis were not present. Patient was admitted to ICU. Arterial blood gases, ALT, AST, CK were normal. Next-day he discharged to service.

Conclusion: Our patient got two different anesthetic problems with airway and hyperthermia during two anesthesia procedures. Children have increased the risk of hypoxia. Careful airway assessment, presence of difficult airway cart/equipment, experienced anesthesiologists and proper anesthetic plan are main requirements. To minimize perioperative complications, careful preoperative workup of anticipated difficult airway in pediatric patients with cervical/mediastinal masses. Monitoring, evaluation of symptoms were very helpful to differential diagnosis of hyperthermia.

P-67
Anesthesia Experience in a Patient with Cerebral Palsy
Tutal ZB, Babayiğit M, Güleç H, Kurtay A, İnceöz H, Horasanlı E
Keçiören Training and Research Hospital, Clinic of Anesthesiology and Reanimation

Cerebral palsy (CP) is a group of nonprogressive neurological diseases characterized by movement and posture disorders. It might occur in antenatal, perinatal or postnatal periods...
due to brain damage. In this case report we aimed to present safe anaesthesia approach to a pediatric patient with CP who underwent an operation for talipes equinovarus.

Seven years old and 40 kg pediatric patient with a diagnosis of CP was planned to undergo orthopedic corrective osteotomy surgery for talipes equinovarus. Patient also had epilepsy and congenital hypothyroidism histories and was receiving levothyroxine, haloperidol, clonazepam, oxcarbazepine and topiramate. Physical examination cardiovascular, pulmonary systems were normal. Patient also had normal biochemical and full blood count tests but TSH was under normal limits (0.041). During operation ECG, peripheral oxygen saturation, axillary temperature, noninvasive blood pressure, bispectral index and neuromuscular monitorings were performed. In anesthesia induction 3 mg kg⁻¹ propofol, 0.5 mg kg⁻¹ remifentanil, 1 mg kg⁻¹ lidocaine and 0.6 mg kg⁻¹ rocuronium were used. We applied 0.25 mg atropine during operation for correction of developed bradycardia (64/mn). Cormack-Lehane classification of the micrognathic patient was determined as grade II and was intubated at the first attempt with a 5.5 mm endotracheal tube. For the maintenance of anesthesia, a mixture of total intravenous anesthesia (TIVA) with propofol 50 mg kg⁻¹ min⁻¹, 0.05 mg kg⁻¹ min⁻¹ remifentanil and 50% O₂-air (3 L min⁻¹) was used. There was no complications in the perioperative period. Tramadol (0.5 mg kg⁻¹) was applied iv for postoperative analgesia. Patient was extubated when TOF value was 90, 5 minutes after the end of surgery. The patient was transferred to orthopedic ward with a Modified Aldrete scale of 9.

Anxiety and communication difficulties in these patients are very common problems. Furthermore, there are case reports with CP patients stating that advent of malignant hyperthermia after implementation of inhalation anesthetics (1). Therefore we preferred TIVA application with TOF and BIS monitorizations. As a conclusion we think that with proper safety measurements for possible complications anesthesia could be performed successfully in complicated CP patients.

Cardiac rhabdomyoma which may cause malignant arrhythmia, can be seen in 60% of patient and regresse spontaneously.

**Case Presentation:** 13 years old male patient diagnosed tuberous sclerosis with cranial and cardiac involvement underwent emergency surgery with a diagnosis of acute abdomen. Preoperative pediatric cardiology consultation suggested isoproterenol infusion and pacemaker incase off deep bradycardia and hypotension. Patient noninvasively monitored. HR: 64 bpm, arrhythmic with VES and SVES BP: 110/70, cardiac oscultation revelead no pathological sounds. Sevoflurane 8% in N₂O 5lt/minute, O₂ 3lt/minute was used for induction. 2 mcg kg⁻¹ fentanly and 0.6 mg kg⁻¹ atracurium were given intravenously. After adequate muscle relaxation patient is intubeted with 5mm OD tube. Isoproterenole and pacemaker was arranged incase of need for use. Sevoflurane was reduced to 4% for maintenance of anesthesia. Surgery lasted 45 minutes with diagnosis of suppurative appendicitis. Patient extubated after adequate muscle strength without decurarization. Patient was sent to pediatric intensive care unit without complication.

**Conclusion:** 60% of TS patients have cardiac involvement which may cause severe hemodynamic disturbances and congestive heart failure. Anesthetic management of these patients should involve detailed preoperative cardiac examination. Pacemaker and relevant inotropic agents should be prepared prior to surgery.

**References**


---

**P-69**

The Reasons of Pediatric Deaths in Our Hospital: Analysis of 2 Years

Çevik B, Arslan G, Erkal H, Bombaci E, Temizel F, Büyükkürşu H

**Objective:** There are many reasons of deaths in pediatric age group (<16) and the trauma is reported as the major cause (1). Because of the location of our hospital in a region having mostly migrated people from rural area and the high density of population, the causes of deaths in this age group show variability. The aim of this study was to evaluate the pediatric deaths in our hospital occuring over a 2-year period.

**Methods:** The patient documentations were examined retrospectively over a 2-years and totally 65 pediatric death
records were evaluated. Deaths in neonatal and burn intensive care units were excluded in this study.

**Results:** Male/female ratio of the patients was 30-35. Sixteen patient died in multidisciplinary intensive care unit due to traumatic reasons, postoperative neurosurgical procedures, respiratory, metabolic and infectious reasons. Remaining 49 patients were resuscitated due to traumatic (traffic accident, falling from height, drowning, carbonmonoxide intoxication etc) or non-traumatic reasons (pulmonary problems, aspiration, congenital abnormalities, metabolic, infectious reasons etc). Fifteen of the patients were under 1 year and the leading cause of death in this age group was hipoxia secondary to aspiration or unkown etiology. Bronchopneumonia and sepsis was the most important cause of death in pulmonary and infectious reasons. As the age increased, deaths secondary to traumatic reasons also increased.

**Conclusion:** The leading cause of death in pediatric patients may differ according to several parameters such as age, living conditions, socio-economic status and education of family. Management of these patients requires multidisciplinary approach and the specific pediatric care units may faciltate the evaluation.

**Reference**


---

**P-70**

**Our Anesthesia Method in a Case with Hereditary Spherocytosis and Thalassemia Major**

Şimşek F, Ertürk T, Kara U, Deniz S  
Ardahan Military Hospital  
GATA Department of Anesthesiology and Reanimation  
GATA Haydarpasa Training Hospital, Department of Anesthesiology and Reanimation

**Introduction:** Hereditary Spherocytosis (HS) is a hereditary disease that causes hemolysis as a result of a defect in erythrocyte membrane proteins. Thalassemia is a hereditary disorder that is characterized by defects in alpha and beta chains of hemoglobin. Sometimes those hemolytic diseases can manifest in the same patient. Potential complications in such patients for anesthesia management include deep anemia, increased hemolysis and intubation difficulties mainly caused by bone deformities.

**Case Presentation:** Splenectomy was planned on a 13-year old female patient. She was diagnosed with thalassemia major when she was 2 months old and hereditary spherocytosis a year before the surgery. The necessary treatment plans were made for the deep anemia and necessary blood products were prepared in the OR for possible blood transfusion needs. Patient was monitored using pulse oximeter, invasive arterial blood pressure, CVP, ECG, body heat and urine output. Anesthesia was induced using propofol, vecuronium and remifentanil infusion and patient was intubated without complications. Anesthesia maintenance was performed using O₂-air mixture and a mixture of isoflurane and remifentanil infusion. Fluid and electrolyte balance and oxygenation were carefully monitored during operation. Patient was extubated without any complications and taken to recovery room following operation. Following the stabilization of hemodynamics and vitals, patient was discharged to her own clinic after 2 hours.

**Conclusion:** HS can increase the risk of anemia due to increased hemolysis, jaundice and splenomegaly, therefore performing a blood transfusion is more likely as the hemolysis increases. Thalassemia major is the most severe form of thalassemia that manifests itself with a progressive hemolysis. Patients need a blood transfusion in every 3-4 weeks. Even though splenectomy in later ages might decrease this need, the most efficient treatment method is a bone marrow transplant. In these patients, in addition to risks such as anemia, jaundice, splenomegaly and bone deformities, blood transfusion related complications are also very common and a very careful preoperative review is vital. Patient’s blood panels should be reviewed in detail, transfusion necessity must be pointed, deformities must be noted and difficulties in intubation should be expected. Fluid and electrolytes balance should be monitored closely with proper monitoring equipment.

---

**P-71**

**Retrospective Analysis of Pediatric Tracheostomy**

Akgöz M, Bayaşalyıldırım Z, Pirinçcioğlu AG, Gül A, Özkurt FE, Topçu I  
Dicle University Medical Faculty Department of Otorhinolaringology  
Dicle University Medical Faculty Department of Pediatrics  
Dicle University Medical Faculty Department of Anesthesiology and Reanimation

**Objective:** Upper airway obstruction, prolonged ventilator dependence and hypotonia secondary to neurological impairment are some of the most common indications for tracheotomy in pediatric patients. This paper reviews analyses for tracheotomy within our patient population over the last 6 years.

**Methods:** We conducted a retrospective chart review of consecutive patients undergoing tracheotomy at the tertiary Dicle University Medical hospital, from January 2006 to December 2012. Patient age, sex, emergency, planned
tracheotomy, indications, complications and decannulation time were all assessed.

**Results:** Fifty-six (34 male, 22 female) adult patients undergoing tracheotomy between 2006 and 2013 were investigated. The most common indication for tracheotomy was upper airway obstruction (66.7%), followed by prolonged intubation (33.3%). Mean decannulation times after tracheotomy ranged between 1 and 131 days, the difference being statistically significant (p=0.040). There was no significant difference in terms of mean age (9.89±6.0; p=0.26). There was also no statistical difference between emergency and planned tracheotomies (p=0.606).

**Conclusion:** In our patient population, there was a significant decline in the number of tracheotomies performed for prolonged intubation and an increasing number of patient tracheotomy for upper airway obstruction. According to the literature, permanent decannulation rates have slightly higher with an increase in genetic diseases such as neuromuscular disease.

---

**P-72**

Anesthetic Management and Central Venous Catheterisation of a Newborn with Harlequin Ichthyosis: A Case Report

Fatih C, Kartal H, Sayın AK, Adıyeye O, Aldemir MT
*Kanuni Sultan Süleyman Training and Research Hospital*

**Introduction:** Ichthyosis is a group of disease that manifests itself in skin keratinization disorder. Mild forms of disease are seen more commonly, heavy forms can be mortal. Harlequin ichthyosis is the congenital form of disease with high mortality rate. Patient dies in very early days of life. It is an autosomal recessive disease (1). Anesthetic management and central venous catheterisation of a patient with HI is presented with review of literature.

**Case Presentation:** Patient was 3 days old with fissurated skin his weight was 1890 gr, dehydrated BP: 58/40 HR: 152. Since anesthesia induction were planned to be started without iv lines intraosseous kit was arranged. Patient placed over heating bed and heat probe was placed. Patient was not monitored with ecg electrodes since they could be harmful to the fissurated skin, precordial osculation was used for rate rate. Oxygen saturation was monitored with free SpO2 probe which was freely located over jellied skin.

Sevoflorane was used for anestesia induction. Laryngoscope, endotracheal tube and airways were jelled to reduce trauma to dried mouth and larynx. Patient was orotracheal intubed with 3mm OD tube at first attempt. Patients skin was 35.80C, heated until 36.4°C before begining the intervention.

Following the asepsi and antisepsis of the skin area, 4F central venous catater was placed at first attempt to subclavien vein. Cateter fixated with 2/0 atraumatic silk suture. Whole process lasted for 17 minutes without any hemodynamic instability.

**Conclusion:** Mild forms of Ichthyosis shows itself with keratinisation only in dry climates. However, harlequin ichthyosis is a rare inherited disease and and highly lethal form. The main problem in ichthyosis is hiperkeratinisation of the skin. Keratinization of the skin deteriorates the fixation of the catether over time. Regular skin control might enables us to stop the uncontrolled removal of the catheter. In rare cases even the best known methods may be insufficient. We present this rare case because we saw that simple unexpected interruptions may cause serious unwanted interventions.

**Reference**

---

**P-73**

Retrospective Evaluation of Pediatric Patients in Intensive Care Unit

*Dr. Lütfi Kırdar Kartal Training and Research Hospital*

**Objective:** In this study, demographic characteristics and follow up parameters of pediatric patients in tertiary critical care unit were evaluated retrospectively.

**Methods:** Demographics, admission diagnosis, Glasgow Coma Scale, mechanical ventilation support, length of ICU stay and outcomes of 69 pediatric patients, ages 1 to 13 in intensive care unit between January 2012 and April 2013 were evaluated.

**Results:** 58% of patients were male and 42% of female. According to admission diagnosis; 28.9% trauma, 23.1% post surgical follow up, 15.9% intoxication, 11.5% respiratory distress with pneumonia, 10.1% convulsion, 10.1% asthma attack. The mean length of stay in ICU was 4.6 days. Minimum Glasgow Coma Scale on the ICU admission was 3, 63.7% of patients were mechanically ventilated between 1 and 27 days, and 4 patients were exitus.

**Conclusion:** Trauma is the most common reason to ICU admission in pediatric population according to our data. The admission criteria to intensive care unit is an important factor that affecting intensive care unit outcomes and mortality.
P-74

Monitorization of the Infant with Postoperative Metabolic Asidosis

Yağışözüy H, Büyükkılıçlı H, Kuzucuoğlu T, Bülbül E, Erlerçevik B

Dr. Lütfi Kirdar Kartal Training and Research Hospital Anesthesiology and Reanimation Department

Introduction: It is important to maintain fluid electrolyte balance at optimal level in the infants prior to surgical intervention (1). In this case presentation; we have aimed to present monitorization and treatment process of the 3-month-old patient who had been placed ventriculo peritoneal shunting for diagnosed hydrocephalus due to posterior fossa tumor. Her preoperative examination revealed GCS: 14 and laboratory values within normal limits. Anaesthetic induction was performed using pentothal (5 mg kg⁻¹), fentanyl (1 mcg kg⁻¹) and rocuronium (0.4 mg kg⁻¹) and the patient was intubated using No. 3 Portex®. A cutdown was performed through v.femoralis and a two-way 4 F catheter was inserted. The patient with 200 mL of bleeding and 310 mL of urine output was replaced 140 mL ES and 310 mL of 1/5 isotonic. The patient was taken to intensive care unit getting intubated at the end of operation. She received mechanical ventilation on SIMV-VC mode (FiO₂: 0.50, TV: 7 mL kg⁻¹, f: 40/min, PEEP: 3 cmH₂O) and had HR: 153/min, TA: 75/52 mmHg, SpO₂: 100% and 35.6°C of fever.

During laryngoscopy teeths were crumbled as lime particles. After intubation EtCO₂ had reached normal levels within 15 minutes. Anesthesia was 60 min. Patient was extubated at the end of the operation.

Case Presentation: The one-month-old female infant was brought to our hospital for complaints of increased head diameter and strabismus. Surgical excision of the mass was planned by Neurosurgery for the 3-month-old patient who had been placed ventriculo peritoneal shunting for diagnosed hydrocephalus due to posterior fossa tumor. Her preoperative examination revealed GCS: 14 and laboratory values within normal limits. Anaesthetic induction was performed using pentothal (5 mg kg⁻¹), fentanyl (1 mcg kg⁻¹) and rocuronium (0.4 mg kg⁻¹) and the patient was intubated using No.3 Portex®. A cutdown was performed through v.femoralis and a two-way 4 F catheter was inserted. The patient with 200 mL of bleeding and 310 mL of urine output was replaced 140 mL ES and 310 mL of 1/5 isotonic. The patient was taken to intensive care unit getting intubated at the end of operation. She received mechanical ventilation on SIMV-VC mode (FiO₂: 0.50, TV: 7 mL kg⁻¹, f: 40/min, PEEP: 3 cmH₂O) and had HR: 153/min, TA: 75/52 mmHg, SpO₂: 100% and 35.6°C of fever. Her postoperative BG tests resulted pH: 6.9, PaCO₂: 75.5 mmHg, PaO₂: 31.8 mmHg, HCO₃⁻: 15.2 mmol/l BE:-16 mmol/l, while her laboratory tests resulted, Glucose: 522 mg/dL, Alb: 2.3 gr/dL, Na: 126 mmol/L, Hb: 9.2 gr/dL, Hct: 29.1, WBC: 20670 U/L and PLT: 275000 U/L. The expected mortality rate according to PRISM was calculated 43.9%. The patient was extubated in the 4th admission day. In the 6th admission day; the patient was loaded 20 cc kg⁻¹ of 0.9% NaCl for three times. In the postoperative intensive care unit in whom postoperative deep metabolic acidosis developed.

Conclusion: Perioperative hydration should be performed sufficiently in the pediatric cases with high risk. We conclude that metabolic complications that may develop in the contrary cases may be minimized by postoperative intensive care unit.

Reference


P-75

Anesthesia Care for a Rare Case: Chondrodysplasia Punctata

Güngör G, Kirman M, Erken B, Bozkurtsıtaş P, Tüysüz B

Istanbul University Cerrahpaşa Medical Faculty

Chondrodysplasia Punctata (CDP) is a genetic disease which is caused by peroxisomal disorder with cardiac malformations, bone and skin lesions and cataract. Abnormal growth, kyphoscoliosis, limb length discrepancy and hip subluxation may occur. Patients due to problems such as skeletal abnormalities and cataracts often undergo orthopedics or ophthalmic surgery.

Respiratory problems are also observed during oropharyngeal tube placement and ventilation.

CDP had been diagnosed when she was 4.5 years old. She was admitted to our clinic for eye evaluation and cataract operation. Child was 7 kg in weight (below 3rd percentile by age), 77 cm length, 40 cm head circumference, had growth retardation. She had egzoftalmus, flat nasal bridge, large tongue and internal rotation contractures in both upper limbs. The lower limb had external rotation posture.

The patient had taken to the operating room due to cataract and trabeculectomy surgery. Due to deformities in both arms, awake position was difficult to trace veins. For the cataract surgery after induction with sevoflurane, the patient’s muscle tone was relieved and vascular access was sought. Manual ventilation was achieved with 8% sevoflurane without any difficulty. Rocuronium 0.4 mg was administered and she was intubated with a No 4.5 tube in the second attempt (smaller than is calculated according to the patient’s age). During laryngoscopy teeths were crumbled as lime particles. After intubation EtCO₂ was 101 mmHg, SpO₂ was 100%. Intraoperatively EtCO₂ had reached normal levels within 15 minutes. Anesthesia was 60 min. Patient was extubated at the end of the operation.

One month later the patient was taken to the operating room due to glaucoma in the other eye. Induction of anesthesia was achieved with 80% oxygen in air mixture. On the third attempt she was intubated with No 4 tube. The patient’s SpO₂...
was 99%, EtCO₂ was 27. Anesthesia was 60 min. The patient was extubated postoperatively.

Patient had given 5 times inhalational anesthesia for eye examination. Sevoflurane 4-5% was given for brief periods, without any problems.

Due to severe growth retardation; the patient’s anesthesia did not conform to the standard anesthesia protocols. Vascular access was difficult because of the extremity contractures. It was difficult to position the patient so the intubation was difficult. Teeth and bone structures would be broken, tooth fragments could be aspirated. The neck of the patient must be protected during intubation and transport to the operating room.

P-76
Anesthetic Management of Children with Larsen Syndrome

Tütüncü AC, Kendigelen P, Gürelvik A, Karacan G, Kaya G
Istánbul University Cerrahpaşa Medical Faculty, Department of Anesthesiology and Reanimation

Larsen Syndrome is the rare inherited disease of defect in collagen formation. It is characterized by facial and extremity abnormalities. Spine anomalies scoliosis, kyphosis, wedge vertebrae, and spondylosis have been described in this syndrome.

In this case report we aimed to present a case with Larsen Syndrome whom was planned to operate inguinal hernia and the anaesthetic management of this syndrome.

A 7 month old, 3750 gr boy with Larsen syndrome was scheduled to treat bilaterally inguinal hernia under general anesthesia. The preoperative examination revealed joint dislocations (hip, knee, and elbow), club foot, and unusual face (flat faces, high palate). Long QT syndrome was detected with cardiovascular examination and propranolol medication was started preoperatively. The patient had severe thorax deformities with pectus carinatus and flared ribs. The severe scoliosis was observed in the spinal column. Following standard noninvasive monitors placement, General anaesthesia was induced with air-oxygen, and sevoflurane gradually increasing the concentration and maintained with the same agents after confirming proper ventilation, intubation facilitated with rocuronium (0.6 mg kg⁻¹) and then caudal epidural analgesia (7 mg bupivacaine/4 mL 0.9% NaCl) was performed. Anesthesia was maintained with 50% oxygen in the air (5 L/m) + sevoflurane (1.5% concentration). Vital parameters remained normal throughout the 50 min. duration of the surgery. Additional muscle relaxant was not required and we applied Sugammadex (1 mg kg⁻¹) for reversal. Following spontaneous breathing under 100% oxygen, with opening eyes to verbal stimuli, the patient was extubated. She had full recovery of airway reflexes and unaided breathing when taken to the recovery room where she stayed for 45 min. Than she was sent to the ENT clinic for follow-up.

Conclusion: Children with achondroplasia can lead to problems in peripheral vascular supply. Large head and tongue, limited cervical extension, flattened nose, adenotonsillar hypertrophy may lead to difficulty in ventilation and intubation. Detailed preoperative assessment will reveal existing pathologies in order to make necessary preparations for a secure airway during anesthesia management. Close postoperative follow-up is very important against the risk of airway obstruction.
A Touch of Life-Saving under General Anesthesia a Case Report

Pirinççioğlu N, Baysalyıldırım Z, Karaman H, Onat S, Ölmezakavak G
Dicle University Medical Faculty Department of Anesthesiology and Reanimation
Dicle University Medical Faculty Department of Thoracic Surgery

Foreign body aspiration in childhood is one of the major causes of accidental death. More frequent in children 6 months-3 years of ages. Sudden onset of cough, wheezing (wheezing) and unilateral decreased breath sounds are the most common symptoms of foreign body aspiration. In this case a 1 year old female patient who aspirated dry legumes is presented.

Shortness of breath, cough coming on suddenly brought to the emergency department with a 1 year old female patient radiograph of the right lung was found to be totally closed. The patient in emergency rigid bronchoscopy under general anesthesia was planned. The patient was conscious when brought to the operating room. On auscultation, chest wheezing and sibilant rales were common; no breath sounds in the right lung was taken.

Monitored patient’s respiratory rate was 35 min, heart rate 192 beats/min, oxygen saturation 90%, arterial pressure 70/40 mmHg. After about 5 min giving preoxygenation iv midazolam 0.5 mg, 2 mg kg⁻¹ propofol, 0.5 mg kg⁻¹ rocuronium bromide provided anesthesia induction. Algesically 1 mcg kg⁻¹ fentanyl was given intravenously. The patient breast surgery was performed by rigid bronchoscopy. Maintenance of anesthesia, rigid bronchoscopy side arm connected to the anesthesia circuit with 2-4% sevoflurane and 100% oxygen free gas flow was allowed to be 5-10L/Dk. Obstructing the right bronchus total pulses was seen. Grasping forceps were used to remove digesting pulses swallowed., In order to prospect laryngeal spasm which may develop after the process, 4 mg kg⁻¹ prednisolone was administered iv into the patient. After the operation, the patient was awakened smoothly.

Tracheobronchial foreign body aspiration which holds an important place in pediatric emergency requires rigid bronchoscopy under general anesthesia, in this process, although serious complications are monitored from time to time it is often admired as lifesaving.

Preprocedural Administration of Midazolam - Safety and Efficacy in Children with Sanfilippo Syndrome Type A

Cingi EC, Beebe D, Whitley C, Belani K
University of Minnesota Department of Anesthesiology
University of Minnesota Department of Pediatrics

Objective: Mucopolysaccharidosis (MPS) are a group of inherited lysosomal storage disorders of glycosaminoglycan (GAG) accumulation. Loss of enzyme activity results in cellular accumulation of GAG fragments leading to the progressive multi-system manifestations. MPS are classified into seven clinical types based on eleven known lysosomal enzyme deficiencies of GAG metabolism. Patients with MPS often require multiple surgical interventions necessitating sedation or general anesthesia for procedures throughout their life. MPS III, or Sanfilippo Syndrome, was described in 1963 by Sylvester Sanfilippo from Minnesota. It is the most common of MPS disorders. MPS IIIA is due to heparin N-sulfatase deficiency undegraded heparan sulfate accumulates in the cells of various tissues and organs. MPS IIIA is the most severe form of Sanfillipo syndrome, with an earlier clinical onset, more rapid progression, the most CNS involvement, and the earliest death.

Methods: We were able to review the records of children with MPS IIIA that were part of a 2-year, prospective, observational study of the natural course of MPS IIIA children not on any investigational therapy. These children underwent standardized clinical, biochemical, neurocognitive, behavioral, developmental, and imaging evaluation so as to identify potential surrogate endpoints for future therapy trials (NCT01047306). To permit these study procedures, the 25 subjects tracked received general anesthesia (GA) total of 94 times. Prior to GA, these children received oral midazolam (0.5 mg kg⁻¹). A transthoracic echocardiography (TTE) was done after they were sedated. The children were monitored with continuous pulse oximetry and a skilled nurse. Their behavior to TTE evaluation and response to parental separation and induction was evaluated.

Results: The children were aged 13 months to 19 years and the premedication was administered 30 minutes before TTE. During the 94 sedation/GA encounters we found that 2 of the 25 did not require sedation. One refused to take oral midazolam and needed i.m. ketamine (3 mg kg⁻¹). 22 children successfully accepted oral midazolam solution 76 times. This premedication was well-tolerated and there were no required airway interventions or need for oxygen supplementation.

Conclusion: Oral midazolam was effective in 22 of the 25 children with one refusing this premedication. No acute ad-
verse effects were encountered with this premedication given in a controlled environment.

P-80
Craniostenosis: A Review of 44 Surgical Patients in Pediatric Cases

Temizel F, Çevik B, Arslan G, Erkal H, Ozüeker M, Sezen Ö, Hiçdönmez T
Dr. Lütfi Kırdar Kartal Training and Research Hospital

Objective: Craniosynostosis is a condition in which one or more of the fibrous sutures in an infant skull prematurely fuses by ossification, thereby changing the growth pattern of the skull. The estimated incidence of this condition is approximately 0.6 per 1,000 births. The main complication of perioperative management in patients with craniosynostosis is coping with the inevitable and often significant blood losses occurring during the operation. We retrospectively describe the factors which directly affect the outcome of craniosynostosis surgery.

Methods: A review of patient records pertaining to preanesthetic evaluation, associated anomalies, intraoperative course, and postoperative follow-up was done for patients who underwent craniosynostosis surgery between January 2010 and January 2013.

Results: 23 male and 21 female children under went corrective surgery for craniosynostosis, the mean age was 8-9 months, weight was 8.2 kg and height was 79.2 cm. One patient has a diagnosis of Apert Sydrome, others have no coexisting anomaly. Mean duration of surgery was 90 min. The induction of anesthesia was carried out via inhalational anesthesia technique with sevoflurane. 0.6 mg kg\(^{-1}\) rocuronium was administered i.v. before orotracheal intubation and the maintenance of anesthesia was supplied with 1.5-2% sevoflurane in 50% O\(_2\). Mean blood transfusion was 52.5mL. 2 patients were followed in PACU after operation because of hemodynamic instability. Mean hospital stay was 5 days postoperatively.

Conclusion: The anesthetic challenges in craniosynostosis surgery continue to be the management of massive blood transfusion, hypothermia and acidosis. Careful and intense follow up is important during anesthesia.

P-81
Our Anesthesia Experience in Holoprosencephaly Patients with MR Proccess

Yıldırım MB, Doğan E, Güzel A, Gümüş A, Celayir FM, Yıldırım ZB
Bursa Şevket Yılmaz Hospital Medical Genetics
Dicle University Anesthesia and Reanimation
Diyarbakır Children Hospital Anesthesia and Reanimation

Introduction: Holoprosencephaly is the inability in the development of the fore brain and mid-faceline. This lack of development results in hypertelorism, absence of philtrum, cleft lip bilaterally, and severe mental insufficiency. In the majority of cases with severe, single central eye (cyclops) is available. Death usually occurs with in the first 6 months. The half of cases is connected tyrosomi 13. The risk for siblings is up 6%.

Case Presentation: MR results was planned for a 7-year old male patient due to the increased incidence of convulsions. There were cleft lip and cleft palate had been operated previously, hairless skin on the frontal region of head, absence of nasal philtrum, and the absence obilateral eye in the face of the patient due to holoprosencephaly. Mental retardation was present in patient. The patient had been diagnosed with ASD in the Cardiac assessment. No abnormality was found in the evaluation of laboratory examination before anesthesia. Height and weight development of the patient were normal, the preparation was made by considering the possibility of difficult intubation and ventilation due to orofacial anomalies difficult. The patient was taken to a room where there were anesthesia machine and monitor compatible MR. After 1 mg midazolam IV for sedation was given to patient, ECG, pulse oximetry, non-invasive blood pressure monitoring were performed. Patient was preoxygenated 3 minutes. 20 mg Ketamine IV was given to the patient who weight about 25 kg. Then propofol infusion was given as quantitative sedation scale was to be 2-3. Any particular roblems did not develop in patient during MR process which was continued about 15 minutes. Propofol infusion was discontinued at the end of MR process. After providing adequate recovery, the patient was sent to the clinic.

Conclusion: Holoprosencephaly, seen with a rate 1/16,000 within live births, was a rare brain malformation arising from a developmental anomaly of fore brain(prosencephalon) in the period of embryonic. Holoprosencephaly anomaly is a developmental anomaly which is involving the midline of the face and brain formation. Severe facial abnormalities are usually accompanied by severe brain abnormalities. Also, cardiac anomalies can be found in patients who have absence of nose and philtrum, cleft lip and palate, premaxillary agene-
sis. Holoprosencephaly is a condition that is incompatible with life. There are very rarely anesthetic studies associated with holoprosencephaly in the literature. MR process is one of the outpatient anesthesia application, and it is hard to keep an adequate level of anesthesia tools and equipment due to the magnetic attraction. Especially, protecting the airway is gaining importance. MR process is a delicate and noisy process, so deep sedation is required in children during it. Ventilation and intubation would be difficult in holoprosencephaly patients due to cleft lip, cleft palate, and lack of nasal philtrum. Hence, it is required to be ready for this and there must be adequate equipment. In the outpatient anesthesia application of these patients, there must be anesthesia apparatus, monitors compatible MR, and oxygen supply. There should be auxiliary airway tools in different sizes, intubation tube and laryngoscope blades for difficult intubation and ventilation. There should be preparation of retrograde intubation and tracheostomy for possible difficult intubation. These patients should be cautious because of possible cardiac problems. Hemodynamics monitoring should be performed at a sufficient level. Hemodynamic parameters were closely monitored because of presence of ASD in our patient. Doses of drugs which are titrated were used.

As a result, in the anesthetic management of patients with holoprosencephaly, although it is difficult, airway protection and preservation of hemodynamics need to be taken care.

P-82

General Anesthesia Experience in Patient with Cerebral Palsy: A Case Report

Öztürk S, Bolat E, Kantekin Ç, Ü
Bozok University Faculty of Medicine Department of Anesthesiology and Reanimation

Introduction: Cerebral palsy (CP) is a disorder results from injury to the developing brain during the antenatal, perinatal and postnatal period. The clinical spectrum changes from mild monoplegia with normal intellect to severe total body spasticity and mental retardation (1). This report aimed to evaluate our general anesthesia experience in patient with cerebral palsy underwent orthopedic surgery.

Case Presentation: Lower limb tenotomy had been performed in our patient (10-year-old boy with 30 kg weight). The movements of the upper and lower extremities were severely limited because of spastic quadriplegia. Additionally, epilepsy treatment (valproat sodium and clobazam) was given to the patient with mental retardation. The examinations of blood samples and electrocardiogram were within normal range. Midazolam (0.5 mg kg\(^{-1}\)) was given orally for premedication. Heart rate, non-invasive blood pressure and SpO\(_2\) were monitored. Anesthesia was induced with intravenous propofol 2 mg kg\(^{-1}\), rocuronium 0.6 mg kg\(^{-1}\) and 25 mcg fentanyl. Rocuronium was repeated 0.15 mg kg\(^{-1}\) in every half hour. After the intubation anesthesia was maintained by using 2% sevoflurane, 50% nitrous oxide in oxygen. Hemodynamic parameters were normal during the operation. Each surgical procedure and anesthesia were completed uneventfully.

Conclusion: Orthopedic interventions comprise 60% of all surgical procedures performed in patients with CP. Achill tenotomy was applied in our patient with bilateral hamstring. The patient’s family was informed about the risks of spinal and general anesthesia. They preferred general anesthesia. Endotracheal intubation was required because of the aspiration risk in our patient with gastroesophageal reflux history. However, neck movements of the patient were easy for intubation.

Although some authors reported developing resistance to nondepolarizing muscle relaxants in patients with cerebral palsy, it is clinically suspicious (2, 3). It is well known that postoperative nausea and vomiting risk can be decreased by using propofol particularly in coexistence with epilepsy history. We also preferred propofol for anesthesia induction in the patient. Heat monitorization, heated intravenous fluids and blankets were used for avoiding delayed recovery from anesthesia due to hypothermia. Postoperative pain was alleviated by paracetamol infusion (15 mg kg\(^{-1}\)) and the quality of recovery from anesthesia was good.

CP affects children differently. Anesthesia should be individualized according to the mental, social and clinical features of the children and type of operation. It is essential to reduce fear and anxiety preoperatively. Anesthesia strategy should consider intraoperative and postoperative complication risks.

References

P-83

Features Postoperative Management of Children with Complicated and Uncomplicated VSD Form

Tuychiyev DB, Tokhirov SM, Abdukadirov AA
Tashkent Pediatric Medical Institute

Objective: Ventricular septal defect (VSD) is one of the most common congenital heart disease (CHD), the incidence of which varies from 11 to 30%. The only method of treatment
for this is surgical correction of the defect. Unfortunately, very often defect complicated by pulmonary hypertension (PH), which directly influences the effectiveness of surgical treatment. Postoperative intensive therapy in children complicated with pulmonary hypertension is one of the pressing issues of pediatric cardiac surgery.

The goal of study: study of the effectiveness of postoperative therapy in children with complicated and uncomplicated ventricular septal defect form.

Methods: We observed 50 children (1 to 5 years) undergoing surgery for correction of ventricular septal defect. Of the children surveyed the number of boys was 32 (64%) and 18 girls (36%). Children among patients with PH II degrees was 24 patients (48%) and PH III degrees in 10 patients (20%), children without pulmonary hypertension, 16 (32%). Postoperatively investigated central hemodynamic parameters such as invasive method for determining the arterial blood pressure A/Ps, A/Pd, A/Pmed.d., central venous pressure CVP; echocardiography (EchoCG) data, the data pulse oximetry (SatO2), electrocardiograms ECG and acid-base status of the organism (CBS).

Results: Immediately after surgery, all patients received pre-shipment moderate doses of inotropic support dopamine or dobutamine infusion (less than 3 mg kg⁻¹ min⁻¹). All patients in the early postoperative period was performed ventilation (ALV) mode IPPV. In order to reduce peripheral vascular resistance used inhibitors of phosphodiesterase milrinone (0.75 mg kg⁻¹ min⁻¹). Instability at the A/P was administered ganglioplegic benzogeksony (2.5%-0.3 mL of sol. i/m), with the aim of further improving the microcirculation appointed inotropic (dopamine 4% sol. 2 mg kg⁻¹ min⁻¹), in/via infusion pump in order to infusion therapy: a solution of NaCl 0.9% + KCl 4% + Glucosae 10% solution (i/v drops). Children with VSD complicated LH postoperative except: dopamine injected 4% (5m kg⁻¹ min⁻¹) combined with 0.1% epinephrine (0.1 mg kg⁻¹ min⁻¹) to decrease venous return to the heart used nitropress (solution of sodium nitroprusside in a dose 3mkg kg⁻¹ min⁻¹) in/through the infusion pump.

Conclusion: According to the study it can be concluded that this method of postoperative management of children with VSD, the most beneficial effect on the efficiency of post-operative care and shortens treatment time in the ICU.

P-84

The Incidence of Pulmonary Hypertension in Children with VSD, Depending on the Location and Size of Defects

Tuychiyev DB, Tokhirov SM, Berdiyev ZM
Tashkent Pediatric Medical Institute

Objective: Defect of the ventricular septum has a different size, shape, be the combined or not accompanied by pulmonary hypertension (PH), or to be compensated. Features of the development of PH are the same as for other defects of fault. Immediately after birth is celebrated cross or a small left-right relief, as the structure of the pulmonary vascular involution pressure in pulmonary artery pressure falls, the discharge increases and there is a compensatory pulmonary vascular spasm and develops “blow down” LH, but if there is a defect long, it is formed sclerotic phase LH. The goal of this study was to investigate the incidence of PH in children with ventricular septal defect and determine the effects of the shape and dimensions of the defect in the development of this complication.

Methods: We examined 25 children from 3 to 5 years are in pediatric cardiac surgery department. Of these, 18 (72%) boys, 7 (28%) girls. All patients were divided into 2 groups: 1-group 16 (64%)-with VSD without pulmonary hypertension, 2-group 9 (36%)-with VSD complicated by pulmonary hypertension. Condition of children studied in terms of the echocardiography (EchoCG), arterial blood pressure (A/Ps), (A/Pd), (A/Pmed.d.), heart rate (HR), central venous pressure (CVP), oxygen saturation indices (SatO2); body temperature (t0); chest X-ray, acid-base state of the organism (ABS).

Results: Patients A/P depending on the age and nature of the defect ranged A/Ps-from 84 to 112 mm Hg, A/Pd-43 to 78 mmHg. CVP in children before surgery: group 1 averaged 5.5 patients in group 2-4.5 mmHg. The body temperature of all patients 36.4±0.6 average pulse rate from 90 to 124 min. According echocardiography: all patients 1-group noted per membranous localization defect, defect size of 4.5 to 9.5 mm, the discharge of the left-right. 2 patients-groups: 5 patients per membranous location marked defect in 5 patients were sub aortal location, 2 patients sub pulmonary localization defect, defect size on average from 7.5 to 19 mm. ECG in patients of the first group, 12 patients were observed left ventricular hypertrophy, left axis electric mixing, patients in group 2.7 patients mixing electrical axis to the right. In 2 cases, the ECG was determined in the per cordial QRS complex as rSR. When these patients than were children with large dimensions of the defect.

Conclusion: The above data shows that in the development of pulmonary hypertension in children with ventricular sep-
tal defect, along with other reasons has the size and importance of the localization of the defect.

P-85

The Choice of Method of Anesthesia for Cystoscopic Interventions in Children

Tuychiyev DB, Kodirov ZS
Tashkent Pediatric Medical Institute

Objective: Anesthetic management of the various methods of examination in children is quite a big problem in pediatric surgery, due to many circumstances of childhood diseases and anatomical and physiological characteristics. Developing new methods of anesthesia during cystoscopic manipulations success allow the pharmaceutical industry to determine the feasibility of a new anesthesia to identify options for the most acceptable and rational. The goal of the study. Selection and development of the most appropriate methods of anesthetic management during cystoscopic procedures.

Methods: Were examined 40 children (4-8 years) with an established diagnosis urethrocele, bladder tumors, which were carried out in order up cystoscopic manipulation under general anesthesia: Patients were divided into 2 groups: 1-group (26)-ketamine anesthesia was performed (2-4 mg kg⁻¹) and propofol (2.5-3.5 mg kg⁻¹ h⁻¹ fractionated administration), 2-group (14)-fentanyl anesthesia carried out (2- mg kg⁻¹), dormicum (0.06 mg kg⁻¹). By anthropometric indicators groups were identical. Investigated the peripheral: arterial blood pressure systolic (A/Ps), diastolic blood pressure (A/Pd), the mean arterial pressure (A/Pm), heart rate (HR), central venous pressure (CVP): echocardiography (EchoCG), glomerular filtration rate (GFR), tubular reabsorption (CR), the level of urea (Ur) and creatinine (Cr) in blood and urine (test La Hema).

Results: Most cases cystoscopic studies conducted in children for diagnostic purposes (62%), with biopsy (18%), removal of bladder stones (8%), the purpose of treatment (8%), with the introduction of antisepsics and antibiotics, postoperative diagnosis (4%). The total duration of from 5 to 35 minutes. Children 1 groups during anesthesia was smooth, provides a relatively hemodynamic stability. Patients in group 2 relative hemodynamic instability observed in 60% of cases observed increase in A/Ps - 20%, A/Pd by 18%, heart rate by 15%. Intraoperative hypovolemia compensated by infusion of NaCl (0.9%-100 mL). Renal function in both groups were unchanged.

Conclusion: These studies revealed that anesthesia using ketamine in combination with propofol is an optimal method in comparison with the method of fentanyl and dormicum.

P-86

Estimating the Depth of Lumbar Puncture Needle in Children

Çelik D, Apilioğulları S, Kara I, Önal O, Çelik JB
Selçuk University Medical Faculty

Objective: Lumbar puncture (LP) is an essential part of spinal anesthesia in children. One of the commonest pitfalls for clinicians performing LP is to insert the spinal needle too deeply may result unsuccessful intervention. The purpose of this study was to evaluate whether spinal canal depth, could be estimated from simple body measurements in a sample of children.

Methods: After local ethics committee approval, lumbar puncture was performed on 200 ASA I-II children younger than 12 years as part of routine spinal anesthesia. Once cerebrospinal fluid was obtained, the needle was marked at the skin before being removed, and the distance was subsequently measured. The relationship between the depth of needle insertion with weight were calculated. We used predictive statistical models for the formulation of LP needle depth.

Results: The patient who included the study was aged 2-144 months, height of 43-154 cm, weight of 2.5-48 kg.

Using the weight, the formula for predicting the required LP depth are:

For all patient; LP depth (cm)=1.460+[0.067x weight (kg)]
For ≤ 12 months; LP depth (cm)=1.186+[0.089xweight (kg)]
For >12 months; LP depth (cm)=1.620+[0.060x weight (kg)]

Conclusion: We demonstrate a good correlation between body measurements and spinal canal depth in children. Use of the simple formula LP depth (cm)=1.46+[0.067x weight (kg)] could improve the success rates of lumbar puncture in the pediatric population, but remains to be validated.
**P-87**

**Dexmedetomidine-Propofol in Tubeless Spontaneous Respiration Technique in an 8-Week Old Infant with Congenital Subglottic Cyst, Laryngotracheomalacia and Tracheal Hemangioma**

Bucsi F, Hernandez AG
St Lukes Medical Center, Philippines

**Objective:** Laryngomalacia is the most common cause of stridor. Concomitant congenital anomalies are common up to 48%, thus, direct laryngoscopy and rigid bronchoscopy (DLRB) are necessary. Of the laryngeal anomalies, both congenital subglottic cyst and tracheal hemangioma are rare. Here, we describe the management of an 8-week old infant weighing 4.8 kg presenting with progressively increasing stridor due to multilevel congenital airway lesions for DLRB under dexmedetomidine-propofol total intravenous anesthesia in a tubeless spontaneous respiration (TSR) technique.

**Methods:** After preoperative consultations, anesthetic goal was to achieve moderate to deep sedation with spontaneous respiratory effort not needing intubation. Upon receiving the infant at the operating room, atropine 20 mcg kg⁻¹ and midazolam 0.1 mg kg⁻¹ intravenously was given. Standard monitors were attached and hooked to 100% oxygen via nasal cannula with a breath sampling line. Continuous infusion of Dexmedetomidine at 1 mcg kg hr⁻¹ was started. After 10 minutes, a bolus of Propofol at 2 mg kg⁻¹ and a spray of lidocaine 1% was given. On establishing the respiratory and hemodynamic stability of the patient, another bolus of Propofol 2 mg kg⁻¹ and Dexmedetomidine 0.7 mcg kg⁻¹ bolus was given prior to insertion of the laryngoscope. The examination lasting 20 minutes was uneventful. Post-DLRB, oxygen as well as paracetamol and dexamethasone was given.

**Results:** General endotracheal anesthesia with sevoflurane was initially contemplated in our patient. However, the findings of severe multilevel stenosis gave uncertainty of whether patient could be intubated using an ET-tube with a wider internal diameter fitting a pedia-bronchoscope's external diameter of 3.5 mm; and, if we could intubate without injuring the larynx, thus, a tubeless technique was used. Dexmedetomidine provided a sedation without respiratory depression and cardiovascular hemodynamics during the procedure to manifest in our patient resulting in a balanced technique.

**Conclusion:** The case offers dexmedetomidine-propofol with TSR as an alternative to GEA where DLRB is necessary. It provides an optimal examination field for the surgeon with uninterrupted deliver of anesthetic ensuring maintenance of desired level of sedation; and, no room air pollution by the volatile gas anesthetics. The presented technique may provide future reference in the management of laryngotracheal examination where the patient could not be further compromised due to critical airway and intubation quite impossible.

**References**

**P-88**

**A Manikin Study Comparing Insertion of Five Paediatric Supraglottic Airway Devices by Final Year Medical Students**

Salammon I, Sharifuddin II, Hashim NH, Hasan MS, Chan L
University Malaya

**Objective:** Cardiopulmonary resuscitation (CPR) may now be performed with a variety of supraglottic airway devices (SADs). Inexperienced healthcare provider uses SAD in CPR, as its insertion is simpler than endotracheal intubation. The objectives of this study is to determine the time to establish effective ventilation and ease of insertion of five disposable SADs; Supreme™ LMA (SLMA), Proseal™ LMA (PLMA), AMBU® AuraOnce™, I-gel™ and Unique™ LMA (ULMA) into a paediatric manikin by inexperienced final year medical students.

**Methods:** 60 final year medical students were randomized into five different group of disposable SADs; Supreme™
LMA (SLMA), Proseal™ LMA (PLMA), AMBU* AuraOnce™, I-gel™ and Unique™ LMA (ULMA). They were provided with brief instructions on how to insert the SADs into a paediatric manikin. A single unblinded observer recorded the students’ insertion time, number of attempts and device manipulation. Results were analyzed using one-way ANOVA test.

Results: I-gel™ had shortest time of insertion, with mean (SD) of 7.29 (2.32) seconds, followed by Supreme™ LMA, AMBU* AuraOnce™, Proseal™ LMA and the last Unique™ LMA, with mean (SD) of 18.90 (8.70) seconds. One-way ANOVA analysis showed significant difference in the time of insertion among the 5 types of LMAs \( F \)-stat (df) of 8.21 (4, 55), p-value <0.001. There were no failed insertions in all the SADs.

Conclusion: In terms of both the time and the rate of successful placement in paediatric manikin by an inexperienced healthcare provider, I-gel™ and Supreme™ LMA are superior to Proseal™ LMA, Unique™ LMA and AMBU* AuraOnce™.

P-89

Repeated Sedation in Pediatric Patients Undergoing Radiotherapy

Muslu S, Aşkı̇n T, Kandemir T, Kılıç Y, Solmaz OE, Karakaya E, Ünver S
Ankara Oncology Training and Research Hospital, Clinic Anesthesiology and Reanimation
Ankara Oncology Training and Research Hospital, Clinic Radiation and Oncology

Objective: Patient immobilization is important in radiotherapy (RT), especially because the treatment times can be lengthy. General anesthesia or deep sedation is generally required for pediatric patients during RT. Endotracheal intubation or laryngeal mask be used to ensure the safety of patients. However, the application of the repetition can cause laryngeal, tracheal and oropharyngeal complications. Deep sedation is less common these complications because laryngeal mask or endotracheal tupe is not placed. In this case, spontaneous breathing and airway reflexes should be protected during RT. Some complications such as desaturation, hypoxia, laryngospasm may occur in patients undergoing deep sedation. By this report it is aimed to discuss the anesthetic approach to 54 pediatric patients who are administered repeated sedation undergoing RT without intubation.

Methods: Data were collected from patient records between 2010 and 2014. Demographic data, diagnosis of primary disease, anesthetic technique and medications, complications, RT dose was recorded.

Results: Fifty four patients were administered 871 sessions sedation. RT was applied to 49 patients in the supine position. Four patients were prone position and one patient was flank position. None of patients were not intubated. Thirty four patients received ketamine and midazolam for sedation. Ketamine was used in nine patients. Thirteen patients was applied other methods. Sedation related complications were observed in eight patients. Six patients had transient oxygen desaturation and increase secretion. Shivering was seen in two patients.

Conclusion: We have not encountered serious complications in any of our patients except for transient oxygen desaturation and increase secretion. We believe that the sedation is administered to pediatric patients who are administered repeated sedation undergoing RT without intubation.

P-90

Clinical Evaluation of Two Modes of Administration of Intranasal Dexmedetomidine in Healthy Adult Volunteers

Leung A
Department of Anaesthesiology Queen Mary Hospital

Objective: Intranasal dexmedetomidine has been proven to produce effective sedation in children and adults. The Mucosal Atomization Device (MAD®) has been postulated to increase the absorption and bioavailability as compared to intranasal dripping via tuberculin syringe. This study compared the pharmacodynamic effects of the two different modes of administration of intranasal dexmedetomidine in healthy adult volunteers.

Methods: This was a three-period crossover double-blinded study. 8 subjects were recruited. In each session they received 1µg kg⁻¹ dexmedetomidine either intravenously (Group A), intranasally with MAD® (Group B) or intranasally by simple dripping (Group C). Ramsay Sedation Scale (SS), visual analogue scale of sedation (VASsedation) and vital signs were assessed up to 8 hours after drug administration.

Results: No significant difference was found in area under curve (AUC) across the three treatment groups for VASsedation (Group A 4.53±1.20, Group B 3.76±1.21, Group C 4.53±2.10; p=0.207) and SS (Group A 3.00±0.50, Group B 2.87±0.43, Group C 2.95±0.28; p=0.656). Intravenous route has a significantly shorter onset time compared to intranasal routes (p<0.001). There was no significant difference in sedation duration across the three treatment groups (p=0.919) and no significant difference in median onset time between the two modes of intranasal administration (p=0.939). The
mean percentage drop in systolic blood pressure and heart rate across all three groups were clinically insignificant.

**Conclusion:** Intravenous dexmedetomidine is associated with shorter onset time. There is no difference in depth and duration of sedation between the three modes of administration. Atomization has no advantage over simple dripping when intranasal dexmedetomidine is given at 1 mcg kg\(^{-1}\) in healthy young adults.

---

**P-91**

**Our Institutional Experience Using Remifentanil for New-Born Babies**

Nakao M, Sakurai Y  
Hiroshima Prefectural Hospital, Department of Anesthesiology

**Objective:** Remifentanil is an indispensable opioid to current general anesthesia. However, due to limited clinical experiences, it is not widely used in pediatric patients, especially in neonate patients. We report our institutional experience using remifentanil for new-born babies.

**Methods:** We retrospectively studied 94 neonate patients (less than 30 days after birth) for the last 2 years. Remifentanil is administered in 13 neonates (age mean±SD; 9.6±8 days, range 0-24 days). No premature neonate was included.

**Results:** Name of performed operation were intestinal obstruction (number of cases; 5), colostomy (2), pyloric stenosis (2), esophageal atresia (1), umbilical hernia (1), persistent urachus (1), rachischisis (1). Anesthesia was induced by fentanyl and inhalation of sevoflurane. Rocuronium is administered to facilitate tracheal intubation. Anesthesia was maintained with sevoflurane 1-2% and remifentanil. Mean body weight was 2.91±0.27 kg. Average infusion rate of remifentanil was 0.253±0.106 mcg kg\(^{-1}\) min\(^{-1}\). Bolus dose of remifentanil was not observed. Tracheal tubes were removed in 5 cases within the operation theater, while sugammadex was administered in 4 cases. One case is extubated immediately after the entry of NICU. There were no significant hemodynamic changes related to remifentanil throughout anesthesia.

**Conclusion:** In previous reports most experience with remifentanil in neonates and infants is as maintenance anesthesia during surgery. In our institute remifentanil proved to be an effective and safely used opioid for maintenance anesthesia. And the dosage of remifentanil in maintenance anesthesia for neonate is almost same for adult. Neonates who enter NICU with intubation, it is difficult to have the advantage of remifentanil with a short recovery profile. However, for full term baby without serious illness, remifentanil may be useful for early extubation. The combination of remifentanil and sevoflurane seems to be a safe general anesthesia in neonates undergoing surgical procedure.