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## Caudal analgesia after ventral hernioplastic: technical difficulties and side effects

**Background.** Patients with ventral hernia after hernioplastyc have a hard postoperative pain. Statistically strong and very strong pain had 17–26 % of operated. The most effective way to deal with the pain syndroms is to use epidural analgesia. Caudal anesthesia (CA) is a one of the types of epidural analgesia. CA has a significant advantage in use, such as simplicity and safety performance, reliable analgesic effect, no significant pharmacological burden on the patient, a minimal effect on hemodynamics and respiration of the patient. Single injection has a long effect. The purpose was to improve the quality of postoperative analgesia in patients after ventral hernia hernioplastyc by using CA by solution of bupivacaine combined with morphine, and to identify complications and side effects of this method. **Materials and methods.** 40 patients were studied in the Kiev Regional Hospital (24 women and 16 men). The hernioplastyc on the ventral hernia was routinely performed to all of the patients. Total anesthesia i was carried out. A postoperative analgesia was performed by ketolong at a dose of 30 mg every 8 hours. Patients performed the spacecraft in the side by 0.125% bupivacaine combined with 4 mg of morphine in the volume of 60 ml (patent of Ukraine № 51615). Clinical parameters of patients: age — 43,0 ± 3,8 years, body weight — 81,5 ± 4,6 kg, body mass index — 26,8 ± 3,1 kg/m$^2$. All patients monitored blood pressure (BP) — systolic and diastolic, respiration rate (RR), saturation ($SpO_2$). Measurements were conducted by the field of functional monitor UTAS. The assessment was performed: after 1, 3, 8, 24 and 48 hours after surgery. **Results.** According to our experience of caudal blockade among technical difficulties we all faced with subcutaneous injection of anesthetic solution. This problem arose in 7.5 % of patients (3 cases). However, after repeated puncture of caudal space, despite some displacement of anatomical landmarks, re injection was successful in 66%. According to the literature, the most frequent complications is vascular puncture of caudal space. However, the performance of our research we have faced with 2,5 % of this kind complication. This complication should pay particular attention to internally vascular infusion of local anesthetic. In re 100 % CA was successful and no other further complications. With the inability of the injection we faced in 5 % (2 patients). In 2,5 % (1 case) was due to the fact that a transferred purulent infection in the patient's coccyx was not possible to reach the caudal space. A 2,5 % (1 case) was not able to differentiate anatomical landmarks due to obesity IV degree. In our research we have not experienced respiratory depression. At all stages of the study was not observed significant decrease of respiratory frequency and saturation. Nausea and vomiting after the injection was observed in 7 patients (17,5 %). It should be noted, that it was conducted in patients with early postoperative period. We can not separate it from postnarcosis effects. Itchy skin was observed in 10 % (4 cases) and subjectively was moderate and did not cause complaints by the patients. Itching disappeared own without medication correction by 6,4 ± 1,9 hours. Delay urinating in our study we observed in 7.5 % of patients (3 cases). This side effect disappeared without medication correction by 5,7 ± 1,1 hours. **Conclusions.** So once carried cargo for postoperative analgesia has the following significant advantages: simplicity and safety performance, reliable and long lasting analgesic effect, no significant pharmacological stress patients and a small number of technical difficulties.

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## Water and electrolytes disbalance in patients with acute stroke and concomitant diabetes

**Background.** Water-electrolyte disturbances that occur in patients with acute stroke (AS) is one of the reasons complications of AS [1]. Concomitant diabetes mellitus (DM) affects the stroke severity and increased mortality rates. The purpose was to investigate the frequency of electrolyte disorders in patients with AS against a background of concomitant diabetes. **Materials and methods.** A analysis of 416 patients with the treatment of AS was conducted. All patients were divided into three groups: 1) patients with established diabetes before the stroke, 2) patients with newly diagnosed diabetes and 3) patients without diabetes. The second phase was conducted a pilot study with an analysis of the frequency of magnesium and phosphate metabolic

disorders in the patients with AS (20 patients with AS on a background of diabetes and 10 stroke patients without diabetes). **Results.** The diabetic history were present in 110 of 416 patients (26.4 %), another 48 patients (11.5 %) diagnosed with diabetes was first installed. Thus, the incidence of diabetes in patients with AS in our study was approximately 38.0%, much higher than in the corresponding age population. In general, the different types of electrolyte disorders were observed in 258 of 349 (73.9 %) patients with AS, while in patients with underlying disorders of carbohydrate metabolism, these violations occurred significantly more often than patients without such. In particular, carbohydrate metabolism occurred in 82 (81.2 %) and 36 (83.7 %) patients 1 and 2 groups versus 134 (65.4 %) in the control group ($p < 0.05$). Hypomagnesemia (less than 0.8 mmol/L) was observed in 2 of 10 patients (20 %) in AS without carbohydrate disturbances and in 6 of 20 patients (30 %) in AS with concomitant diabetes. Hypophosphatemia (phosphate levels less than 0.8 mmol/L) was found in patients without diabetes and AS in 2 patients with concomitant DM or newly diagnosed diabetes. Following the correction of oral medication containing phosphates and magnesium blood electrolyte levels was stabilized and that coincided with the improvement of the patients and the degree of disability. **Conclusions.** Electrolyte disorders are fairly common problem in patients with concomitant diabetes and AS. In patients with impaired carbohydrate metabolism observed significantly higher frequency (more than 81.2 % of patients) occurrence of electrolyte disorders than patients without them. In the case of AS on a background of diabetes electrolyte disturbances occur significantly more frequently than in patients without such comorbid disorders. Further research is needed to elucidate the role of individual electrolyte disorders (eg, magnesium and phosphate) in the course and consequences of AS.

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# X-linked myotubular myopathy and dilated cardiomyopathy as the cause of respiratory failure in a ventilated child in the ICU (case report)

**Background.** Centronuclear myopathies (CNMs) are a group of clinically and genetically heterogeneous muscle disorders [1]. Myotubular myopathy, an X-linked form of CNM is characterized by neonatal hypotonia and inability to maintain unassisted respiration. The MTM1 gene, responsible for this disease, encodes myotubularin — a lipidic phosphatase involved in vesicle trafficking regulation and maturation [2]. **Case report and discussion.** We report a 7-month old male infant who has required mechanical ventilation since birth due to suspected neuromyopathy. Congenital adrenal hyperplasia, Pompe disease (type II glycogenosis), Prader — Willi syndrome, and SMA were excluded. Further genetic testing revealed a hemizygous variant (c. 64–2A > G) in MTM1. This variant is predicted to abolish the intron 2 splice donor site of MTM1 and has been reported in a male infant with severe X-linked myotubular myopathy [3]. Our patient's mother and maternal grandmother were found to be heterozygous carriers of the c. 64–2A > G variant. Two variants of uncertain significance were detected in this patient's MYH7 gene. MYH7 encodes the cardiac-specific beta heavy chain myosin protein and is a cause of autosomal dominant dilated cardiomyopathy and distal myopathy. One variant (p.Leu881Met) was inherited from the father and the other (p.Arg1749Gly) was inherited from the mother. The paternally inherited variant is found in a region of the MYH7 protein where a significant number of previously reported MYH7 missense mutations are found [4]. Both MYH7 variants are absent from the ExAC public database. Thus, the genetic testing allowed us to diagnose the combined genetic pathology: myotubular myopathy and possibly dilated cardiomyopathy. This pathology causes the respiratory failure and the need of permanent respiratory support in a patient. **Conclusions.** The case report demonstrates importance of: 1) genetic screening in a population, especially in genetics-compromised parents, for family planning and timely detection of hereditary diseases during pregnancy; 2) early genetic testing to confirm the diagnosis of a sick child; 3) development of palliative and hospice medicine with the possibility of providing ventilation support at home by parents (guardians).

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