FUNCTIONAL GASTROINTESTINAL DISORDERS IN A TERTIARY OUTPATIENT SETTING – A THREE-YEAR PERIOD OUTCOME

1Katarina Milošić*, 2,Milana Natalija Ćorić, 3Lana Omerza, 2,3Irena Senečić-Čala, 2,4Jurica Vuković, 2,5Duška Tjišić-Dirković, 1Department of Emergency Medicine of Krapina-Zagorje County, Dr. Mirkov Ckvenca 1, 49000 Krapina; 2Zagreb School of Medicine, Šalata 3, 10000 Zagreb; 3,5UHC Zagreb, Department of Paediatrics, Kilićaticeva 12, 10000 Zagreb

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Goal The aim of this study was to evaluate functional gastrointestinal disorders (FGIDs) seen by the paediatric gastroenterologist (PG) and their outcome during a three-year period.

Method The study included children with FGIDs who visited the PG at the UHC Zagreb from January 1st 2017 to December 31st 2017 (N=328). This retrospective cohort was followed until December 31st 2019, data was extracted retrospectively from clinical records and their outcomes were assessed. Descriptive statistics and McNemar’s test were used, statistical significance was determined as p < 0.05.

Results About 2/3 of outpatients (222/328) dropped out during the year 2017. The leading diagnosis was functional constipation (90/222 or 40.5%) and more than half of these patients were younger than 11 years (106/222).

Most drop-outs visited the PG only once in 2017 (134/222), but for 33 patients this was a control visit, meaning that 101/222 (45.5%) needed no further subspecialist’s follow-ups after the index visit. During the year 2018 the number of patients who dropped out was 63/106 (59.4%) or 1/5 of the initial group. Finally, 43/328 or 13.1% of children from the initial cohort were still supervised by PG during the year 2019. About half of them had functional constipation (20/43), followed by irritable bowel syndrome (IBS) (12/43) and other functional abdominal pain disorders. Majority of patients were in the adolescent group (28/43). Further, we assessed the severity of symptoms at their last appointment in a subgroup of 227 patients who had one or more check-ups in the three-year period. About half of the patients claimed some improvement (115/227 patients), while 1/5 stated they were symptom-free (49/227). About 1/4 of children reported no change in the severity of symptoms (58/227). The vast majority of patients were correctly diagnosed with FGID, although the type of FGID changed in 13/328 subjects.

In one patient, however, the diagnosis of IBS was reversed to ulcerative colitis. A significant number of children was included in a child psychologist/psychiatrist treatment (74/328 or 22.5%).

Conclusion This survey reveals that almost half of children referred to the PG because of FGID needs only one subspecialist consultation. Less than 15% of children with FGID have persistent complaints lasting three years and requiring prolonged PG follow-ups. Adolescents tend to have more pronounced symptoms difficult to treat, as they were more prevalent in the subgroup followed to 2019 than in the initial 2017 cohort (28/43 vs. 143/328, p <0.001).

This is a one-year follow-up study looking into the nutritional status and the rate of re-hospitalizations in children at the UHC Zagreb, Dept. of Paediatrics who were first evaluated during the nutritionDay (nDay) in November 2018. The aim is to evaluate the accuracy of STRONGkids questionnaires, subjective assessment within nDay survey and anthropometry in detecting malnutrition and possible relation to number of hospital admissions and disease outcomes (for oncology patients) within a year.

The study included 50 patients (mean age 13.48 years ±3.79, 22 males) whose nutritional status was estimated in November 2018. Additional data were collected after the period of 12 months. Mann-Whitney U, Kruskal Wallis and Wilcoxon signed-ranks tests were applied.

A significantly different BMI was found among subgroups categorized through the nDay survey (without risk, at risk, malnourished patients) and among subgroups assessed by STRONGkids (low, medium and high risk for malnutrition) (p1=0.002, p2=0.003, resp.). Post hoc tests showed that statistical significance could be contributed to differences between groups malnourished patients vs. those not at risk within nDay (p3=0.009) and between groups low vs. high and medium vs. high risk defined through STRONGkids questionnaires (p4=0.020, p5=0.004, resp.). In the one-year follow-up period, 28/50 children were re-hospitalized once or several times.

The number of re-hospitalizations was significantly higher for children classified by STRONGkids to have high risk for malnutrition (p6=0.002), as well as for those categorized as malnourished through the nDay survey (p7=0.024). No significant difference in z-score BMI values was found between years 2018 and 2019 (Wilcoxon signed-rank test: p8=0.086).

Re-hospitalized oncology patients (11) were additionally analysed in respect of their disease status: favourable outcome (disease regression; 8/11) vs. unfavourable outcome (progression or unchanged state; 3/11). No difference was observed in the initial BMI between these groups (Mann-Whitney U test: p9=0.921), and no significant change in their BMI during this period was observed in either group (Wilcoxon signed-rank test: p10=0.161, p11=0.593).

Patients categorized as malnourished both with STRONGkids and nDay survey had significantly lower BMI than the rest of subjects. Our data support the hypothesis that malnourished patients have a higher rate of re-hospitalizations. Within the observational period, re-hospitalized patients neither improved nor worsened their nutritional status according to the BMI z-scores. We were not able to connect the nutritional status of oncology patients with their disease outcome after one year, perhaps due to a rather small sample or short time of follow-up.

REFRACTORY CYCLIC VOMITING SYNDROME IN A CHILD WITH CHIARI MALFORMATION TYPE II

Ivana Trivić*, Ana Moćić Pavić, Vlasta Duranović, Hrvoje Jednačak, Ivo Barić, Iva Hojšak, Zrinka Milošić, Sanja Kolaček, Oleg Jadrinek. Referral Centre for Paediatric Gastroenterology and Nutrition, Children’s Hospital Zagreb

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Introduction Cyclic vomiting syndrome (CVS) is a chronic disorder characterized by recurrent episodic attacks of intense

EVALUATION OF CHANGES IN NUTRITIONAL STATUS IN RE-HOSPITALIZED CHILDREN

Gabriela Živković*, Lana Omerza, Milana Natalija Anićić, Irena Senečić-Čala, Jurica Vuković, Duška Tjišić-Dirković, University of Zagreb, Zagreb School of Medicine, Zagreb

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Within the observational period, re-hospitalized patients neither improved nor worsened their nutritional status. A significantly different BMI was found among subgroups assessed by STRONGkids (low, medium and high risk for malnutrition) (p1=0.002, p2=0.003, resp.). Post hoc tests showed that statistical significance could be contributed to differences between groups malnourished patients vs. those not at risk within nDay (p3=0.009) and between groups low vs. high and medium vs. high risk defined through STRONGkids questionnaires (p4=0.020, p5=0.004, resp.). In the one-year follow-up period, 28/50 children were re-hospitalized once or several times.

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nausea and vomiting lasting hours to days and separated by a return to baseline health.

The episodes are usually stereotypical in an individual patient, oftentimes preceded by prodromal symptoms. Similarly to other functional gastrointestinal disorders, the diagnosis of CVS relies on symptom-based Rome criteria IV. With the pathophysiology of the disorder still largely unknown, the management of CVS remains a challenge, especially in those with other comorbidities. Chiari malformation may manifest with recurrent vomiting, either due to raised intracranial pressure or to direct pressure on the brainstem.

**Case Report**

We present a case of a female patient born with lumbosacral meningomyelocele and Chiari malformation type II whose attacks of nausea and vomiting started at the age of 10 months. The episodes were frequent, once to twice monthly, and stereotypical in their nature. Prior to vomiting, the child would suddenly become still and unresponsive, experiencing vegetative symptoms such as flushing and sneezing, followed by profuse bilious vomiting lasting up to a week.

The girl’s state usually required hospital admission and vigorous parenteral replenishment of fluid, electrolytes and energy. Over the years, extensive diagnostic evaluation has been undertaken and no structural gastrointestinal nor metabolic abnormalities were found. Imaging studies, as well as neurological examination and diagnostic tests, did not help to elucidate the aetiology of recurring episodes. There were no signs of intracranial hypertension, VP drainage (performed in early childhood) was functional, repeated EEG did not reveal dysrhythmic changes. Treatment attempts including the sole administration of propranolol, amitriptyline, levetiracetam, ciproheptadine and topiramate and various combinations of said agents were unsuccessful in decreasing the frequency and severity of episodes. At the age of 7, the patient underwent operative treatment of Chiari malformation type II. After cranio cervical decompression, the episodes remained unchanged. Finally, aprepitant, NK-1 receptor antagonist, was introduced as a prophylactic and abortive agent when the girl was 8 years old. In the year following its introduction the episodes became much less frequent and shorter, never requiring parenteral hydration, leading to better somatic growth and improved health-related quality of life.

**Conclusion**

Although there are no definitive treatments for CVS, NK-1 antagonist (aprepitant) may be effective as a prophylactic and/or abortive medication in refractory cases, leading to substantial improvement in the quality of life.

254 MYCOPlASMA PNEUMONIAE INFECTIONS WITH ATYPICAL DEVELOPMENT IN CHILDREN — CASE PRESENTATION

Nikola Pavlinović*, Ranka Despot, Sandra Prgomet. Public Health Centre of the Split-Dalmatia County, Split, Croatia Department of Pediatrics, University Hospital of Split, Split, Croatia

Introduction Lower respiratory tract infections are considered a common cause responsible for morbidity and mortality among children, and Mycoplasma pneumoniae is identified to be responsible for up to 40 per cent of community-acquired pneumonia in children greater than five years of age [1] and also in 20% of adult cases [2].

Extrapulmonary manifestations have been reported either due to spread of infection or autoimmune mechanisms [1]. A case report on necrotizing pancreatitis was issued by Yang et al., 2015 [3].

Case 1. A 9-year old boy was admitted to our hospital presenting with an acute febrile illness lasting for four days associated with a generalised, centripetal rash and macrohaematuria. He had been previously treated with azithromycin for three days. Past medical history revealed that tonsillectomy was performed at 5 years of age and the diagnosis of hypoacusis perceptiva was made. On initial assessment he appeared well, alert and conscious. He was subfebrile (37.6°C), with a maculopapular confluented rash on the trunk and proximal parts of lower limbs. Initial investigation revealed elevated sedimentation rate (54 mm/h), leukocytosis (16,7 x10⁹/l), normal hemoglobin level and normal total red cell count. The patient had slightly elevated bilirubin (total bilirubin 65.8, conjugated 44.6 μmol/l), elevated AST (342 U/l), ALT (345 U/l), and GGT (534 U/l). His renal function and electrolyte panel was normal. Chest X-ray was normal without any lesions in the lungs. Urine investigation revealed macrohematuria, proteinuria with active urinary sediment (dysmorphic erythrocytes and erythrocyte casts). On ultrasound kidney's were enlarged with hyperemic parenchyma, diminished corticomedullar differentiation. Because of proteinuria (total protein 2829 mg/24 hours, albumin 1394 mg/24 hours), and hematuria, kidney biopsy was performed. On light microscopy we found mesanghypercellularity, interstitial fibrosis and tubular atrophy (focal). On IF microscopy there was a poorly expressed granular deposit of IgM on the glomerular basement membrane (GBM) with no IgA, IgG, C1q, C3 and C4 immune deposits. On electron microscopy the GBM was of variable width (113 to 670 nm, average 303 nm, SD 164). In the thicker part of GBM lamination was present. Podocytes were normal. The pathohistologic exam was consistent with Alport syndrome. Mycoplasma serology was consistent with acute infection, with Mycoplasma IgM positive (26.3 U/mL), and negative IgG.

Case 2. A 15-year old male adolescent was admitted to hospital with symptoms of abdominal pain lasting for two weeks, with no nausea or vomiting, and normal stool passing. The boy was living with his mother, who had been diagnosed with neurofibromatosis, in an atypical family situation of divorced parents.

Physical examination showed abdominal pain in the left upper quadrant, also spreading to the back and lumbar region. Initial laboratory analysis showed a slight increase in serum amylase (140 U/L) and lipase (518 U/L). The C-reactive protein was inside referent range (2 mg/L) as were the value of liver enzymes (AST, ALT, GGT). The TSH was inside referent range, and the antibodies related to gluten enteropathy came negative (anti-tTg-IgA and anti-DGP-IgG). The serology results showed positive antibodies to Mycoplasma pneumoniae (IgM positive, 60.3 U/ml, IgG positive, 25.8 U/ml). We also proved positive IgG antibodies to parvovirus B19, cytomegalovirus, and herpes simplex virus (HSV 1/2). MRI of the abdomen showed a focal pancreatitis (changed signal of the pancreas tail parenchyma).

The patient received standard treatment (pancreatic diet and proton-pump inhibitor) and an improvement was perceived with a slow decrease of serum amylase and lipase. Due to a later onset of fever with respiratory symptoms, clarithromycin therapy was initiated. This patient had a second episode of acute pancreatitis nine months after the described event with somewhat larger initial values of serum amylase (154 U/L) and lipase (1533 U/L), and also elevated urine