The prevalence of the classical form was 58.3% in group 1 and 66.7% group 2 ($p=0.736$); atypical CD 41.7% vs 31.1% ($p=0.509$). Moderate and severe epigastric pain was common in both groups: 50.0% vs 31.1% ($p=0.309$). Significantly elevated level of anti- tTG antibodies ($>100\text{RU/ml}$) was detected equally in groups: 33.3% vs 47.7% ($p=0.516$). The prevalence of elevated level of antiparietal antibodies in groups was the same: in group 1- anti- H+/K+ ATPase antibodies in 2 children and in 3 children in group 2; and anti-intrinsic antibodies in 1 person in group 1 as in group 2. Thus, 25% vs 8.7% ($p=0.078$).

Conclusion There are conflicting studies results regarding the association between *H. pylori* and CD. Whether *Helicobacter pylori* triggers, doesn't affect or protects against CD is currently the subject of research. This study didn't reveal any effects of *H. pylori* on course of celiac disease in children despite the fact, that *H. pylori* is suspected as possible trigger of autoimmunity.

264 SCREENING FOR ANTIBODIES, ASSOCIATED WITH AUTOIMMUNE LIVER DISEASES IN CHILDREN WITH CELIAC DISEASE

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Objective to determine the prevalence of autoimmune liver diseases in children with CD.

Methods We observed 45 children aged 3 to 16 years. CD in all patients was diagnosed according to the ESPGHAN criteria. Serological examination with the determination of antibodies to tissue transglutaminase (anti-tTG IgG, IgA); histological examination of the duodenal mucosa; genetic typing for HLA-DQ2/DQ8 were carried out. Duodenal histology having Marsh grade III features were eligible for the study. Antibodies to hepatic antigen cell nuclei, skeletal muscle, cell nuclei, mitochondria, smooth muscles of IgG class were determined by indirect immunofluorescence (nRIF) using reagent kits. The antigen were biochips of primate's liver, primate's musculus iliopsoas, human Hep2 epithelial cells, liver, kidney, and stomach of rats.

Normal titer $<1:80$. Anti-Parietal Cell Antibody (PCA), IgG was determined by nRIF using biochips primate's stomach as antigen. This kit of reagents detects antibodies for the diagnosis of such diseases as autoimmune hepatitis(AIH) 1, 2 and 3 types, primary biliary cirrhosis, primary sclerosing cholangitis (PSC), overlap syndrome (combination of AIH and PSC), autoimmune gastritis.

Results We didn't obtain elevated levels of antibodies associated with autoimmune liver disease in all children with CD. In 1 person we observed elevated levels of anti-parietal cell antibodies. It was a 15-year-old girl with a typical form of celiac disease, additionally suffering from primary oligomenorrhea, autoimmune diabetes mellitus (type 1). Further examination revealed non- *Helicobacter pylori* atrophic gastritis. Thus, autoimmune gastritis was diagnosed.

Conclusion Antibodies, associated with autoimmune liver diseases were uncommon in children with CD. Probably, due to insufficient amount of participants of the study. On the other hand, anti-parietal cell antibodies have been found.

265 SCFA (SHORT CHAIN FATTY ACIDS) PROFILE IN CHILDREN WITH COELIAC DISEASE

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The intestinal microbiota ferments complex carbohydrates that have not been broken down or absorbed during digestion into short-chain fatty acids (SCFA). SCFA are involved in different metabolic processes and the functioning of the immune system. Recent studies have shown changes in the SCFA profile in people with celiac disease (CD). Here we compared the composition of SCFA in the faecal water of the paediatric population with CD and the healthy children (HC).

Faecal samples were obtained from 5 individuals with CD (2 female, 3 male) on a gluten-free diet (GFD) and 5 HC (3 female, 2 male) aged 13-18 years. To determine the SCFA concentrations sterile filtered fecal water was prepared.

The SCFA profile was determined by gas chromatography.

We compared the average SCFA concentrations between groups with CD and HC, for which we used the Student's t-test. We also calculated the total SCFA and the fermentation index $FI = (\text{acetic acid} - (\text{propionic acid} + \text{butyric acid})) / (\text{the sum of SCFA})$.

The comparison of concentrations of individual SCFA fractions showed a statistically significantly lower value of acetic acid ($p = 0.04$) and a statistically marginal increase in caproic acid concentration ($p = 0.089$) in the CD group. The averages of other SCFA were higher in healthy individuals but without statistical significance. Total SCFA was statistically significantly higher ($p = 0.047$) in HC. Fermentation index was 0.092 in HC and 0.079 in CD patients.

The literature regarding the profile of SCFA in the paediatric population CD is scarce. Our results differ from the current literature, which reports a significant increase of acetic acid, total SCFA, and fermentation index in the paediatric population with CD compared to the control group. An increase in caproic acid in CD has not been reported yet. Recent studies have suggested that the study groups' age difference or the amount of gluten in the diet could explain the discrepancies in our results.

266 EFFECT OF DIETARY PROTEIN INTAKE ON BODY MASS INDEX AMONG PRIMARY SCHOOL CHILDREN

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Recent studies have suggested that excessive dietary protein intake, especially animal-source protein, in infancy could affect health outcomes (e.g., obesity) in childhood. However, the effect of dietary protein intake in school-age children on growth and development is still unclear. The aim of this study was to assess dietary protein intake and its association with body mass index (BMI) in primary school children in Croatia.

Anthropometric measurements of children ($n=156$; 50% boys) aged 8.3 ± 0.5 years from primary schools in Zagreb City were performed according to standard protocols. Sex- and age-standardized BMI z-scores were obtained using AnthroPlus software. A dietary record for 3 non-consecutive

days was used to assess total protein intake and protein source. Adequacy of total protein intake (g/kg BW) was estimated by comparing with population reference intake of European Food Safety Authority (PRI EFSA).

Of all school-age children involved in this study, 65% of them had adequate BMI, 22% were overweight or obese and 13% were underweight according to sex-standardized WHO BMI-for-age z-scores. Almost all (99.4%) children exceeded the PRI EFSA recommendation for protein intake. Average daily total protein intake was 2.3 ± 0.1 g/kg BW (68.4 ± 1.4 g/day), which is about

$249 \pm 72\%$ of PRI EFSA recommendation. Children's daily animal protein intake (1.5 ± 0.04 g/kg BW) was twice as much as plant protein (0.8 ± 0.02 g/kg BW), which was evident from the animal-plant protein ratio (2.1 ± 0.1). In line with logistic regression, adjusted for energy intake and gender, BMI was negatively associated with total protein intake, as well as with animal protein intake. Accordingly, children who had higher total protein intake ($\beta = -5.087$, OR 0.006, 95% CI 0.001-0.04, $p < 0.001$) and animal protein ($\beta = -3.298$, OR 0.037, 95% CI 0.008-0.167, $p < 0.001$) were less likely to be overweight and obese. No association was observed between BMI and plant protein intake.

Intrinsically, results suggest that higher total and animal protein intake is associated with lower BMI in school-age children. However, additional studies with different designs would be required to determine the relationship between protein intake (total, animal and plant) and BMI or body composition in school-age children with respect to other lifestyle and environmental factors.

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DIAGNOSIS AND MANAGEMENT OF WILSON'S DISEASE IN CHILDREN: A TUNISIAN SINGLE-CENTER EXPERIENCE

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Goal Wilson's disease (WD) is an autosomal recessive genetic disease characterized by accumulation of copper in the body leading to severe hepatic and neurological damage. It is one of the few genetic diseases that can be treated effectively. The aim of the study was to describe Diagnostic features, therapeutic management and outcome of WD in Tunisian children.

Methods Retrospective cohort study of WD cases diagnosed at Tunisian tertiary referral hospital over a period of 10 years (2010 – 2019). Data collection was done from medical records.

Results We collected 20 cases of WD (15 boys and 5 girls). Median age at diagnosis was 8 years [3 -12 years]. Consanguinity was found in 14 patients.

Three patients had a history of WD in the siblings. Clinical presentation was as following: four patients were diagnosed by family screening at a presymptomatic stage, 15 patients presented with hepatic symptoms (jaundice (n=4); hepatomegaly (n=5); clinical signs of portal hypertension (n=6)) and one patient presented with hematuria caused by kidney stones (hypercalciuria). Chronic hepatitis, acute hepatitis, liver cirrhosis and fulminant liver failure were observed respectively in two, four, six and four cases. Neurological and psychiatric

involvement was noted at diagnosis in 7/20 patients. Kayser Fleischer's ring was observed in three cases.

Proximal tubular involvement was reported in three cases, associated to glomerular involvement in one case. Hematologic disorders were observed in

11/20 cases: pancytopenia (n=2), thrombocytopenia (n=5), Coombs-negative hemolytic anemia (n= 4). Thirteen patients had low levels of serum ceruloplasmin, with a median level of 0.12 g/L [0.04-0.18]. The 24-hours urinary copper test showed high level in 12 cases with a median level of 3.8 $\mu\text{mol}/24\text{h}$ [1.5-6.72]. D-penicillamine sensitization test was performed in ten cases and was positive in eight cases. Liver biopsy was done in only two cases. Mutation analysis of the ATP7B gene was performed in four cases: no mutation was detected in one case and three patients had homozygous ATP7B mutation (H1069Q). D-penicillamine and pyridoxine were started in all cases.

One patient presented adverse reaction and received zinc acetate (Wilzin).

Most patients were stabilized or improved on chelation therapy, one patient deteriorated and one patient died within the follow up period.

Conclusion Cirrhosis at diagnosis increases the risk of death. Early diagnosis, at a precirrhotic stage was associated with a best prognosis.

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ASSESSMENT OF NUTRITIONAL STATUS IN HOSPITALIZED CHILDREN IN TUNISIAN TERTIARY REFERRAL PEDIATRIC HOSPITAL

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Introduction Malnutrition of the hospitalized child is a widespread problem that remains under diagnosed because of the different definitions. The purpose of our work was to assess the nutritional status of the hospitalized children at Tunis Children's Hospital and to determine the factors determining nutritional status.

Methods This is a cross-sectional study in the 'one day' mode conducted three times. We included children aged between 3 months and 13 years and hospitalized for more than 48 hours. We evaluated the auxological parameters according to the curves of the Control Disease Center and the World Health Organization.

Results We enrolled 87 patients. The prevalence of undernutrition was 21% (18 children). Eight patients (9%) had chronic undernutrition. Twelve patients were under 24 months of age. Undernutrition was more common among children of rural origin and from poor socio-economic classes. Chronic underlying diseases were present in eleven of undernourished children. Food intake was 57% in average. Nutritional risk was high in 13 patients.

Acquired undernutrition was observed in 14 patients. Weight loss was more than 5% in nine of them. Underlying chronic disease, the nutritional risk score and the Waterlow index were significantly correlated with undernutrition.

The prevalence of overweight was 13% (11 patients). Mean age was 42 months.

Overweight was more common among girls, in rural areas, from poor families with a family history of obesity. The