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ACID INDEX OF THE ESOPHAGUS AS A NEW TOOL FOR DIAGNOSIS OF GASTROESOPHAGEAL REFLUX DISEASE AND EVALUATION OF THE EFFECTIVENESS OF PROTON PUMP INHIBITORS

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Introduction
There are controversial questions of gastroesophageal reflux disease (GERD), which demands a discussion: is the parameter of 24-hour pH-monitoring (pH-impedans) of esophagus and stomach (per cent of total time with pH<4) identical criterion of diagnosis and control of treatment?

Study Aims
Study aim was to evaluate the significance of the new criterion acid index of esophageal (AIE) for the diagnosis and treatment of gastroesophageal reflux disease.

Methods
The results of 24-hour pH-impedance or 24-hour pH-monitoring in patients with GERD (n=81) were evaluated. Until recently, 24-hour esophageal pH monitoring conducted on an outpatient basis was the gold standard for the diagnosis of GERD. The generally accepted parameter was the percentage of total time with pH<4 (normal = 4.5%). In accordance with the Lyon consensus, this parameter was changed to 6% for the diagnosis of GERD. Percentage of time with pH<4 – the parameter is very rough and does not reflect true acid-damaging potential of reflux content. Similar to a group of American researchers who proposed to determine the acid index of the stomach in the program of 24-hour pH monitoring, we introduced the calculation of the acid index of the esophagus (AIE).

Results
There is a positive correlation between the AIE and the percentage of time with pH<4 (r1=0.71), but a more pronounced correlation was observed between the AIE and the percentage of time with pH<1 (r2=0.94). The differences between the correlation coefficients are statistically significant (p<0,01). AIE more adequately characterized the acid-damaging potential of reflux content in the esophagus in patients with GERD (before and after treatment). It should be noted that for equal percentages of the total time with pH<4 (4,5 or 6%), the AIE could vary. On the other hand, many patients have a normal pH<4 according to the Lyon consensus, but very high values of AIE.

Conclusions
Instrumentation should be introduced into the daily practice of GERD diagnosis and evaluation of the effectiveness of proton pump inhibitors in the treatment of such patients.

MODIFIED PYLOBACT AM-BASED THERAPY

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Introduction
The expediency and necessity of the eradication of H. pylori is beyond doubt and is recommended in the numerous consensus of recent years. In numerous studies in most countries there has been a significant decrease in the effectiveness of standard triple therapy. Eradication does not reach to the optimal values of the most frequently used anti-H.p. regimes.

Study Aims
Study aim was to conduct a study to assess the effectiveness of the modified pylobact AM-based therapy (MPAMBT) and comparing it with the standard pylobact AM-based therapy (SPAMBT) and known data of the meta-analysis of tailored therapy.

Methods
In the 1-st group the patients received a modified therapy with Pylobact AM during 14 days (additionally omeprazole 20 mg b.i.d and colloidal bismuth subcitrate 240 mg b.i.d. and prebiotic) and in the 2-nd group standard 7-day therapy Pylobact AM.

Results
In the 1st group (n=201) patients with MPAMBT, and in the 2nd group (n=15) patients receiving SPAMBT. Indicators of eradication H. pylori in the 1st group, 95% (ITT) and 96% (PP), and in the 2nd group, 53% (ITT) and 57% (PP). Indicators of eradication H. pylori when conducting a tailored therapy according to the meta-analysis made up Mav = 87,6% (ITT) and 92.2% (PP). MPAMBT significantly exceeded the indicators of the eradication H.p. in SPAMBT and not yield to tailored therapy. When conducting MPAMBT total 2 times less frequently detected adverse events, than SPAMBT.

Conclusions
MPAMBT can be offered as a therapy of the 1st line without determining the antibacterial sensitivity and metabolism of PPI, since the increase in the duration of anti-H.p. therapy up to 14 days, doubling the dose of omeprazole to 80 mg per day, administration of anti-H. p. the mode of colloidal bismuth subcitrate and prebiotic complex allows to overcome the resistance of H.p. to various antibacterial drugs and the effect of PPI metabolism on the results of eradication. This option of treatment of Helicobacter pylori infection reduces costs and accelerates the appointment of etiopathogenetic treatment.

DIAGNOSTIC ROLE OF INTERLEUKIN-6 IN ALCOHOLIC LIVER DISEASE

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Introduction

Opinions about the significance of interleukin-6 (IL-6) in alcoholic liver disease (ALD) are contradictory - some authors reveal its pro-inflammatory effect, others - hepatoprotective and regenerative.

Study Aims

The aim of the study was to assess the IL-6 level in various forms of ALD.

Methods

98 patients with ALD were examined: 11 with liver steatosis (LS), 17 with steatohepatitis (SH), 70 with liver cirrhosis (LC). Men were 52 (53.1%), women - 46 (46.9%), the age was 50.3 ± 11.3 years. The diagnosis of ALD was established on the basis of clinical, laboratory and instrumental data. The level of IL-6 was determined by ELISA using test systems ELISA using test systems "Interleukin-6 "Interleukin-6 - IFA-Best" (Vector-Best, Russia)

Results

The IL-6 level in all forms of ALD exceeded that in healthy individuals and significantly increased as ALD progressed. IL- 6 was 4.0 ± 1.1 pg / ml in LS versus 2.1 ± 1.1 in healthy donors ($p < 0.05$), 17.4 ± 2.8 pg / ml in SH ($p < 0.05$ compared with LS) and 45.4 ± 9.6 pg / ml in LC ($p < 0.5$ compared with SH). The IL-6 level was significantly correlated with hepatic tests: with prothrombin ($r = -0.45$, $p < 0.05$), with cholesterol ($r = -0.55$, $p < 0.05$), with albumin ($r = -0.3$, $p < 0.05$) and with bilirubin ($r = 0.45$, $p < 0.05$). A positive association of IL-6 was noted with a traditional inflammatory marker C reactive protein ($r = 0.62$, $p < 0.05$). These correlations indicated a deterioration in the functional activity of hepatocytes with IL-6 increasing and confirmed the pro-inflammatory effect of this cytokine. The IL-6 growth was detected as the progression of LC severity: at class A on Child-Pugh it was 37.8 ± 8.5 pg / ml, at class B - 42.4 ± 4.2 pg / ml ($p > 0.05$) and at class C - 50.6 ± 7.1 pg / ml ($p < 0.05$).

Conclusions

The IL-6 level depended on the form of ALD: IL-6 was maximal in patients with liver cirrhosis, minimal - with liver steatosis. IL-6 correlated negatively with functional hepatic indicators and positively with inflammatory indicator, confirming its pro-inflammatory effect.

REGULATION OF SECRETARY ACTIVITY OF THE PANCREAS IN PATIENTS WITH ALCOHOLIC CHRONIC PANCREATITIS AND HEALTH

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Introduction

Chronic pancreatitis, characteristic feature is the presence of focal necrosis and severe fibrosis. Our investigation can help to show adaptation mechanisms in cases of severe fibrosis.

Study Aims

To define a new structural regulation in fibrosis in pancreas.

Methods

In two groups 68 patients with chronic alcoholic pancreatitis (AHP), stage - A compensation and B- decompensation, and 30 healthy volunteers we measured the concentrations of acetylcholine (Ach), serotonin (5-HT), secretin (C), cholecystokinin (CCK), cholinesterase and elastase (E), that were determined before and after stimulation with food.

Results

In the control, the postprandial concentration of 5-HT increases slightly, the stimulation of secretion is carried out by Ach. In CP-group concentration of of 5-HT increases as well. Ach does not increase, and Ach decreases in stage B. The source of a significant increase in 5-HT is duodenal mucosa. It was established, that duodenal mucosa in patients with CP increases the concentration of 5-HT by 78%. In addition to release from the nerve endings in the area of inflammation, the duodenal mucosa is the source of increased 5-HT concentration. In patients with AHP, serotonin, which is elevated before and after the breakfast, becomes the main stimulant. The concentration of Ach before the breakfast is high but after it decreases.

Conclusions

The study allowed us to determine and evaluate the blood levels of neurotransmitters and hormones, to identify violations in the system of regulation and compare them to the secretory activity in stages A and B. Increased concentration of neurotransmitters and hormones at AHP is adaptive, aimed at maintaining the secretory activity of the pancreas with severe fibrotic changes in its tissue. The result of the identified changes in the regulation system is that the quality of pancreatic juice decreases.

AN EVALUATION OF PALLIATIVE HOME PARENTERAL NUTRITION SERVICE AT BARTS HEALTH NHS TRUST

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Introduction
Home parenteral nutrition (HPN) or 'palliative nutrition' in advanced cancer is increasingly used, but it remains unclear which patients will benefit, or even how the benefit is defined. Currently, care for HPN patients with advanced cancer is provided in many centres, but there are few data about the service and the outcomes.

Study Aims
This project aims to evaluate patients receiving palliative home parenteral nutrition at Barts Health to define benefit and risk outcomes and assess characteristics associated with these outcomes.

Methods
In this retrospective audit 26 patients who received palliative HPN between January 1st, 2015 and June 15th, 2019 in Barts Health NHS Trust were included. Clinical information on demographics (age, sex and diagnosis), indication for HPN, types of intestinal failure, survival and admission to hospital due to HPN complications were collected. We compared the current practice in the centre to the guidelines and statements laid down by NICE and BAPEN.

Results
The study found out 26 patients with advanced cancer received palliative HPN in the centre in last four years, 15 were females (57.5%), the median age was 59.5 years (range 38-77), the median number of days on HPN was 93 days (range 14- 375). The most common tumours were gastrointestinal (57.7%) and gynecologic was (42.3 %). The leading indications for palliative HPN were small bowel obstruction (76%), gastric outlet obstruction (16%), short bowel (4%), enterocutaneous fistula (4%). The audit suggests better patient selection, and documentation can improve the service in the centre. Performance status was not documented in 92% of patients. In our cohort, there was no correlation between inflammatory markers (C-RP and Albumin) with survival. 25 % died in hospitals and hospices and other half at home, and palliative care was

Conclusions
The use of palliative HPN is increasing. Our current patient selection meets with ESPEN guidance with respect to aetiology of intestinal failure and length of survival on PN. However, the service we give to patients with palliative HPN compared to BAPEN's position statement needs improvement in patient assessment before starting HPN and in care for the quality of life of patients. Multi-centeric prospective study can help to assess quality of life in these patients and designing a useful tool for assessing lifeexpectancy.

DIAGNOSTIC ROLE OF INTERLEUKIN-6 IN ALCOHOLIC LIVER DISEASE

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Introduction

Opinions about the pathogenetic and diagnostic significance of interleukin-6 (IL-6) in alcoholic liver disease (ALD) are contradictory - some authors reveal its pro-inflammatory effect, others - hepatoprotective and regenerative.

Study Aims

The aim of the study was to assess the IL-6 level in various forms of ALD and its relationship with the main clinical syndromes of the liver damage

Methods

98 patients with ALD were examined: 11 with liver steatosis (LS), 17 with steatohepatitis (SH), 70 with liver cirrhosis (LC). The diagnosis of ALD was established on the basis of the AUDIT questionnaire, anamnestic, clinical, laboratory and instrumental data. The level of IL-6 was determined by ELISA using test systems "Interleukin-6 - IFA-Best" (Vector-Best, Russia)

Results

The IL-6 level in all forms of ALD exceeded that in healthy individuals and significantly increased as ALD progressed. IL- 6 was 4.0 ± 1.1 pg / ml in LS versus 2.1 ± 1.1 in healthy donors ($p < 0.05$), 17.4 ± 2.8 pg / ml in SH ($p < 0.05$ compared with LS) and 45.4 ± 9.6 pg / ml in LC ($p < 0.5$ compared with SH). The IL-6 level was significantly correlated with hepatic tests: with prothrombin ($r = -0.45$, $p < 0.05$), with cholesterol ($r = -0.55$, $p < 0.05$), with albumin ($r = -0.3$, $p < 0.05$) and with bilirubin ($r = 0.45$, $p < 0.05$). A positive association of IL-6 was noted with a traditional inflammatory marker C reactive protein ($r = 0.62$, $p < 0.05$). These correlations indicated a deterioration in the functional activity of hepatocytes with IL-6 increasing and confirmed the pro-inflammatory effect of this cytokine. The IL-6 growth was detected as the progression of LC severity: at class A on Child-Pugh it was 37.8 ± 8.5 pg / ml, at class B - 42.4 ± 4.2 pg / ml ($p > 0.05$) and at class C - 50.6 ± 7.1 pg / ml ($p < 0.05$).

Conclusions

The IL-6 level depended on the form of ALD: IL-6 was maximal in patients with liver cirrhosis, minimal - withn liver steatosis. IL-6 correlated negatively with functional hepatic indicators and positively with inflammatory indicator, confirming its pro-inflammatory effect.

THE ASSESSMENT OF THE SEVERITY OF COW'S MILK PROTEINS ALLERGY MANIFESTATIONS USING THE COMISS SCALE IN CHILDREN WITH DEFFERENT LEVELS OF VITAMIN D

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Introduction
Today vitamin D deficiency is considered as one of the pathogenic causes of food allergies in children. CoMiSS (The Cow`s Milk-related Symptom Score) is seen as a tool to raise awareness of the most common symptoms of Cow`s-Milk Protein Allergy (CMPA), which in turn can help earlier accurate diagnosis. The scale is also a tool that can be used to quantify the evolution of symptoms during a therapeutic intervention.

Study Aims
To assess the severity of CMPA manifestations in children of the first year of life using the CoMiSS scale depending on their vitamin D level.

Methods
One-hundred and five children of the first year of life with CMPA were examined. The level of vitamin D supplementation was studied in all examined patients by determination of 25 (OH)D in blood serum. Further, according to the results of the analysis, all children were divided into two groups: the main group – 38 patients with CMPA and normal level of 25(OH)D, the comparison group – 67 children with reduced levels of vitamin D. The severity of clinical manifestations of CMPA was assessed by using the CoMiSS. This scale evaluates the severity of gastrointestinal (crying, regurgitation, stool), skin and respiratory manifestations of CMPA.

Results
In patients with normal vitamin D supplementation the average score in the group on the CoMiSS was 15.0±0.6 (95 % CI = 13.7 – 16.4), which was significantly lower ($p<0.05$) compared to children suffering from CMPA, and having a reduced level of vitamin D. In the comparison group, the average score in assessing the severity of CMPA symptoms in children was 19.6±0.6 (95% CI = 18.5 – 20.7), indicating a more severe course of clinical manifestations of CMPA in these patients.

Conclusions
Thus, children of the first year of life with CMPA are characterized by the presence of insufficient supply of vitamin D. At the same time for children of the first year of life with low levels of vitamin D are characterized by more severe CMPA symptoms. The using of CoMiSS makes it possible to effectively study the severity of clinical symptoms in children of the first year of life suffering from CMPA.

PATIENTS WITH IRRITABLE BOWEL SYNDROME HAVE LOW ENZYMES ACTIVITY OF THE MEMBRANE DIGESTION IN THE SMALL INTESTINE

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Introduction

The decrease in enzymes activity of the membrane digestion (EAMD) in the small intestine providing digestion of carbohydrates can cause clinical symptoms of irritable bowel syndrome (IBS).

Study Aims

To estimate EAMD, namely glucoamylase (GA), maltase (M), sucrose (S) and lactase (L), in patients with IBS and the effect of their activity in long-term therapy with rebamipide.

Methods

One-hundred-two patients with IBS, 41 men and 61 women were examined. According to Rome IV criteria (2016), 68 patients had IBS with predominance of diarrhea, 20 patients had IBS with predominant constipation and 14 patients showed mixed type of IBS. The activity of GA, M, S and L were determined by Dahlquist-Trinder method in duodenal biopsies obtained during esophagogastroduodenoscopy. The control group consisted of 20 healthy people aged 23-47. They showed following enzyme activity: L – 42 ±13 ng glucose/mg tissue x min, GA – 509 ±176, M – 1735 ±446, S - 136 ±35 ng glucose/mg tissue x min. These figures were taken as thenorm.

Results

10,8% of the study group showed normal EAMD (11 out of 102 patients), 32.3% had decreased activity of all studied enzymes and 58.8% had selective reduction of EAMD. Thirteen patients with reduced EAMD were recommended the FODMAP diet and ingest rebamipide 3 times a day x 200 mg for 3 months. Before the treatment the activity of GA of these patients averaged 83 ±78, M-417 ±221, S – 32 ±17, L-11 ±17 ng glucose/mg tissue x min. After the treatment 11 patients reported a decreased or no flatulence, abdominal pain, stool disorder; 2 people reported no change. The activity of GA increased to an average of 149 ±82 (by 78%, p = 0.016), M to 864 ±472 (by 131%, p = 0.0019), S - 63 ±35 (by 95%, p = 0.0041) and L – 10 ±8 ng glucose/mg tissue x min.(the activity did not change significantly).

Conclusions

In 89.2% of patients with IBS, there was a decrease of EAMD responsible hydrolysis of carbohydrates. The 3-month treatment with rebamipide helped reduce clinical symptoms and increase EAMD.

WHAT WE NEED TO KNOW TO NORMALIZE THE BOWEL RHYTHM?

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Introduction
The problem of normalization of bowel rhythm is one of the key problems of gastroenterology. Violation of the circadian rhythm of defecation is a proven risk factor for diverticular disease, metabolic syndrome and colorectal cancer.

Study Aims
The aim of this study was to determine the dependence of the regularity of the bowel rhythm on the presence or absence of Morning Bowel Habit.

Methods
We used the method of Chronoenterography - weekly monitoring of defecation rhythm in 356 medical students aged about 20 years (164 women, 192 men). There were a regular (daily stool at least 7 times a week) and irregular bowel rhythm (at a frequency 1-6 times a week).

Results
Regular circadian bowel rhythm was detected in 189 individuals. Disturbed bowel rhythm was detected in 167 persons. Irregular rhythm of defecation was diagnosed in 47% of the examined persons. Morning Bowel Habit (MBH) of persons with a regular rhythm, was almost 2 times more common than absence of this habit (125:64=1.95). The absence of MBH in persons with Irregular defecation rhythm was almost 3 times more common than the presence of this habit (125:42=2.97).

Conclusions
1. Regular Bowel Rhythm is associated with the presence of Morning BowelHabit.
2. Irregular Bowel Rhythm is associated with the lack of Morning BowelHabit.
3. To normalize the rhythm of defecation (to restore everyday stool at least 7 times a week) it is necessary to know that the risk factor for constipation is the absence of Morning Bowel Habit, and the factor of restoring the physiological regularity of the circadian rhythm of defecation is the mandatory presence of Morning BowelHabit.

THE IMPACT OF DIFFERENT OREGONIN EXTRACTS ON PANCREATIC LIPASE ACTIVITY

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Introduction

It is a well known problem in Latvia, that many people have tendency to the disfunction of pancreas and duodenal dyspepsia, mostly due to the "Western diet" which can cause gallstone disease, obesity, metabolic syndrome and disorders in metabolic homeostasis. Plant derived natural compounds like Oregonin extract from Black and White Alder trees bark, containing diarylheptanoids, can be used as the solution for this problem. One of the main reasons of this research is that natural compounds are widely available and are very cost effective. The research was conducted by European programme COST CA 15135 framework.

Study Aims

The aim of this research was to find the impact of Oregonin extracts on the function of pancreatic lipase and triglycerides digestion with and without bile.

Methods

Two different Oregonin extracts obtained from bark of Black and White Alder trees in dose of 150 µl were tested in physiological macromodel of duodenal digestion of triglycerides by lipase with bile and pathological digestion without bile. The extracts were provided by Latvian State Institute of Wood Chemistry. One concentration for both extracts was used to find differences between them. The influence was measured by enzymatic reaction products – free fatty acids and their impact on pH.

Results

Both extracts showed powerful activation of pancreatic lipase. The extract from Black Alder tree showed the increase of lipase activity by 12%, while the extract from White Alder tree showed more intense reaction boosting lipase action by 15%; the same dynamic of enzymatic reaction was visible in tests without bile as well. It is worth mentioning that, Oregonins showed high antioxidant capacity, which was confirmed in all previous testing sessions.

Conclusions

By increasing the activity of lipase, Oregonins provide beneficial effects on many aspects of digestion, as well as metabolic homeostasis. Group of patients with chronic pancreatic disfunction, chronic gallbladder diseases and malabsorbtion, are recommended to use Oregonins as nutritional supplement to improve digestion and therefore overall life quality.

CELL THERAPY FOR PERIANAL CROHN'S DISEASE

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Introduction
Perianal fistulas comprise a common and disabling phenotype of Crohn's disease (CD). Despite the significant effect of anti-cytokine therapy in fustulizing CD, treatment of these patients remains a difficult task with high risk of CD relapse. Mesenchymal stromal cells have immunomodulatory properties and a large regenerative potential and can be used for treatment fistulizing CD.

Study Aims
Study aim was to compare the efficacy of combined therapy (local and systemic) mesenchymal stromal cells (MSCs) of bone marrow, infliximab (IFX) and antibiotics/immunosupressors (IS) on the rate of healing of simple perianal fistulas in CD.

Methods
Thirty-six patients with perianal CD were divided into three groups, depending on the method of therapy. The first group of patients aged from 19 to 58 received culture of MSCs systemically and locally. 40 million MSCs were injected along the perimeter of the fistulous in 4 spots, re-injection was performed in 4 and 8 weeks. The second group of patients with CD (n=10) aged 20 to 68 years received anti-cytokine therapy of IFX. The 3-rd group of patients with CD (n=14) aged 20 to 62 years received antibiotics and IS. The process of fistula's external opening closure was assessed regularly by means of endoscopy (in 3, 6 and 12 months from start of therapy).

Results
After 12 weeks among patients of the 1-st group simple healing of fistulas was observed in 10/12 patients (83.3 %), in the 2-nd group - in 8/10 (80.0%) (p=0.72), in the 3-rd group – in 5/14 patients (35.7%) (p=0.04 in comparison with the 1-st group). After 6 months in the 1-st group of patients, healing of simple fistulas persisted in 8/12 (66.6%), in the 2-nd group - 7/10 (70.0%) (p=0.76), in the 3-rd group – 4/14 (28.6%) (p=0.12 in comparison with the 1-st group). After 12 months in the 1-st group healing of simple fistulas was observed in 7/12 (58.3%), in the 2-nd group -in 6/10 (60.0%) (p=0.69), in the 3-rd group – in 2/14 patients (14.3%) (p=0.03 in comparison with the 1-st group).

Conclusions
Combined stem cell and anti-cytokine therapy of fistulizing CD significantly contributes to more frequent and prolonged closure of simple fistula, compared with antibiotics/immunosuppressors.

PREVALENCE OF EXTRAINTESTINAL MANIFESTATIONS IN ADULT PATIENTS WITH INFLAMMATORY BOWEL DISEASE: RESULTS FROM THE MOSCOW COHORT STUDY

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Introduction
Limited data are available on the prevalence and type of extraintestinal manifestations (EIM) in adult patients with Crohn's disease (CD) and ulcerative colitis (UC) in Moscow region.

Study Aims
We aimed to assess the prevalence and type of EIM in patients with inflammatory bowel disease (IBD).

Methods
Data of 733 incident UC and CD patients diagnosed between November 1, 2014 and November 1, 2015 were analyzed (m/f: 402/331, median age at diagnosis: 34, interquartile range (IQR): 26-55 years, duration: 6, IQR 3-10 years). Both in- and outpatient records were collected and comprehensively reviewed.

Results
EIMs (joint, skin, hepatobiliary, coagulation abnormalities, pulmonary) were present in 268 patients (36.5%), who suffered from one to a maximum of two EIM during their disease. EIM were more frequently observed in CD patients (172/301, 57.1%) when compared to UC patients (96/432, 22.2%, $p < 0.001$). The following types of EIM were observed: 183/733 (24.9%) suffered from peripheral arthritis / arthralgia (16,8% in UC vs. 10.2 in CD); 24/ 733 (3.2%) primary sclerosing cholangitis-PSC (2.7% in CD vs. 0.8% in UC), 8/733 (1%) pulmonary (all cases in patients with UC); 10/733 (1.3 %) skin manifestations -erythema nodosum (2.5% in CD vs. 0.6% in UC); 32/733 (4.3%) coagulation abnormalities (5.9% in CD vs. 3.2% in UC); 6/733 (0.9%) combination of two EIM – PSC and peripheral arthritis (all cases in CD patients) and 5/733 (0,7%) patients had erythema nodosum and peripheral arthritis (0.5% in UC vs. 1% in CD).

Conclusions
Generally, EIM are more frequently observed in CD patients when compared to UC patients. The most frequent EIM are peripheral arthritis /arthralgia, followed by coagulation abnormalities. Further investigations are required to identify prognostic markers and predictors of EIM in IBD patients and its association with the treatment options.

MORPHOLOGICAL FEATURES OF DUODENAL MUCOSA IN CHRONIC DUODENITIS DEPEND ON ITS ETHIOLOGY

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Introduction

The morphological features of duodenal mucosa with chronic gastroduodenitis (CGD) without celiac disease: with giardia, with HP-gastritis, with allergic enteropathy usually the same. It is necessary to use new diagnostic methods of duodenal mucosa in patients with duodenitis of different etiology.

Study Aims

We investigated the morphological and immunohistochemical (IHC) features of duodenal mucosa in patients with duodenitis of different etiology.

Methods

Seventy-six children (6 to 17 years) with chronic gastroduodenitis (CGD) without celiac disease were examined. For all patients a target biopsy of descending duodenum was performed followed by histological examination. We used the following histologic staining: hematoxylin and eosin, alcian blue, Romanovsky-Giemsa method, and IHC staining for chromogranin. Giardia was detected by a coprological test, HP and its genes were detected by PCR, allergic enteropathy was diagnosed by clinical and allergological methods, celiac disease was excluded immunologically, histologically and morphologically.

Results

Numerous correlations were revealed between the etiological variants of duodenitis and the morphological state of duodenal mucosa. The strongest positive correlation dependences were revealed between the presence of giardiasis and duodenitis activity ($r = 0.9$; $p < 0.05$) and duodenal mucosa subatrophy ($r = 0.8$; $p < 0.05$). The presence of highly pathogenic HP strains having 3 or 4 pathogenicity island genes (ureC, cagA +, cagC +, cagE +, cagH +) determined the severity of duodenitis ($r = 0.63$; $p < 0.05$), its degree of activity ($r = 0.86$; $p < 0.05$) and the development of subatrophy ($r = 0.86$; $p < 0.05$), while low pathogenic strains (ureC, any one gene of the cag group) did not affect the morphological picture of duodenal mucosa. The relationship between allergic enteropathy and moderate eosinophilic infiltration ($r = 0.68$; $p<0.05$), microcirculatory disorders ($r = 0.6$; $p < 0.05$) and duodenal mucosa subatrophy ($r = 0.82$; $p < 0.05$). IGC-staining of neuroendocrine cells in the group of patients with allergic enteropathy revealed an increased content of chromogranin in the cellgranules.

Conclusions

It is necessary to study the significance of chromogranin determination in the duodenal mucosa for the diagnosis of allergic duodenitis.

ASSOCIATION BETWEEN RISK OF LIVER FIBROSIS AND THE COMPOSITION OF FAECAL MICROBIOTA IN TYPE 2 DIABETES MELLITUS PATIENTS WITH NAFLD

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Introduction

Non-alcoholic fatty liver disease (NAFLD) is the most prevalent liver disease in the world. Diabetes is a well-known risk factor for developing NAFLD and advanced liver disease.

Study Aims

To evaluate the composition of faecal microbiota in patients with type 2 diabetes mellitus (T2DM) depending on BAAT score for liver fibrosis.

Methods

Data were collected retrospectively from newly diagnosed T2DM patients included in OPTIMED study from June 2015 – October 2017. Patients with known conditions affecting microbiota were not included. Faecal microbiota was detected with metagenome shotgun sequencing approach. Modified hepatic steatosis index (HSI=8*(ALAT/ASAT)+BMI (+2, if female; +2, if DM) (Lee et al., 2010) was used to evaluate the presence of liver steatosis. Fibrosis risk was assessed using BAAT score (BMI, age, ALAT, triglycerides) (Ratziu et al., 2000). Data analysis was performed using IBM SPSS Statistics 22, Galaxy web application and R (v.3.5.2).

Results

21 patient were included in the study. After calculating modified HSI, 3 patients were excluded as having no NAFLD. 10 out of 18 patients were male, age (median± ICR) 58± 18,75 years, BMI 34,72± 9,34 kg/m2, 3 patients had BAAT score 1 (no fibrosis); 7 patients – score 2 (indeterminate) and 8 patients - score 3 (high risk for liver fibrosis). Patients with score 3 had significantly lower bacterial diversity at phylum level (p=0,034) and higher at genus level (p=0,043) in comparison with others (score 1 and 2) (Mann-Whitney U test). They had also significantly increased proportion of family Lachnospiraceae, in particular - genus Roseburia (Roseburia intestinalis and Roseburia inulinivorans), genus Dorea (Dorea longicatena), species Coprococcus comes and Ruminococcus gnavus, and genus Odoribacter (f.Porphyromonadaceae). Non-metric multidimensional scaling (NMDS) did not reveal distinct clustering of microbiomes in patients according to BAAT score. Two most distant patients had the lowest triglycerides in group, both didn't take statins. We found negative correlation of phylum Proteobacteria with triglycerides (TG) (Spearman's rho r=-0,686; p=0,002), phylum Verrucomicrobia with waist circumference (WC) (r=-0,564, p=0,023), BMI (r=-0,66, p=0,003) and TG (r=-0,546, p=0,019).

Conclusions

We demonstrated different faecal microbiota composition in T2DM patients with high risk for liver fibrosis in comparison to patients with low and indeterminate risk.

MORPHOLOGICAL FEATURES OF CHRONIC ESOPHAGITIS AND THE LEVEL OF EOSINOPHILIC CATIONIC PROTEIN AND EOSINOPHILIC NEUROTOXIN IN CHILDREN WITH ATOPIC DERMATITIS

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Introduction

The interrelation of eosinophilic inflammation in the mucous membrane of the upper gastrointestinal tract in atopic diseases is discussed.

Study Aims

To study the morphological features of chronic esophagitis (CE) in children with atopic dermatitis (AD) and their relationship with the level of markers of eosinophilic inflammation (eosinophilic cationic protein (ECP) and eosinophilic neurotoxin (EDN)).

Methods

In 45 children (13,9 ± 2,36 years) CE was morphologically verified (biopsy from the mucosa of the middle third of the esophagus). Group I – 24 children with CE and AD, control group – 21 children with CE without AD. All was determined the level of ECP, EDN in the blood by ELISA.

Results

Morphological signs of CE were equally often detected in the study groups. AD significantly more often revealed hyperplasia of the basal layer of the esophageal mucosa (33.3% and 0% respectively, $p<0.01$), neutrophil infiltration (98.96% and 19.05%, $p<0.001$), microcirculation (33.3% and 19.05%, $p<0.05$). Significantly more often AD revealed an increase in the average number of eosinophils (3.89 ± 2.6 and 2.5 ± 2.6, $p<0.05$), the number of mastocytes (3.7 ± 1.8 and 2.94 ± 1.24, $p<0.01$), mast cells (3.95 ± 1.63 and 3.17 ± 1.28, $p<0.01$), neutrophils (19.59 ± 9.15 and 14.52 ± 5.23, $p<0.01$) per 100 epithelial cells. Differences in the presence of eosinophilic infiltration in deep layers (29,17 % and 14,29%, $p>0,05$), eosinophilic microabscesses (13,13 % and 19,05%, $p>0,05$), gastric metaplasia (8,33% and 9,25%, $p>0,05$) were not revealed. Levels of ESR (13.26 ± 3.23 PG/ml and 11.45 ± 63.41 PG/ml, $p>0.05$) and EDN (47.26 ± 36.55 PG/ml and 28.88 ± 9.45 PG/ml, $p>0.05$) did not differ in the groups. No correlations between eosinophilic infiltration, the presence of eosinophilic microabscesses in the esophageal mucosa and the level of ESR, EDN were obtained.

Conclusions

For children with AD and CE the presence of more pronounced eosinophilic, neutrophilic, mast cell infiltration in the mucous membrane than in CE without atopy. The differences are not related to the level of markers of eosinophilic inflammation in the blood. Further research, including immunohistochemistry, is needed to explain the differences.

TRANSIENT ELASTOGRAPHY CUT POINTS TO ASSESS LIVER FIBROSIS IN CHILDREN

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Introduction
Liver fibrosis is result of chronic liver diseases and is associated with complications, morbidity and mortality. The liver biopsy remains the gold standard for diagnosing fibrosis, but it is associated with the risks of complications (bleeding, intrahepatic hematomas, infections) and sampling error. Many studies have shown that liver stiffness measuring using transient elastography can diagnose the stage of fibrosis in chronic liver diseases in adults.

Study Aims
To receive an optimal liver stiffness measurement cut point to differentiate METAVIR fibrosis stages F1, F2, F3, F4 in children with chronic liver diseases.

Methods
Patients at National Medical Research Center for Children's Health with liver stiffness measurement from 2012 to 2018 and liver biopsy ≤12 months before screening were included. Diagnostic performance was assessed by receiver operating curve analysis.

Results
In total, 135 subjects were enrolled. The cohorts are 39% male and 61% female, median of age 10.2±4.7 years. Liver diseases including 37% autoimmune, 11.1% cholestatic (hypoplasia of the bile ducts, primary sclerosing cholangitis, cystic fibrosis), 25.2% viral, 25.2% metabolic disorders (aminoacidopathy, alpha-1-antitrypsin deficiency, Wilson's disease, glycogen storage disease, fructosemia, tyrosinemia), 0.7% Crigler-Najjar syndrome, 0.7% angiomatosis of the portal vein. All METAVIR stages were well represented. Optimal cut points to predict mild (F1) and moderate (F2) fibrosis were >5.8 kPa and >7.8 kPa, for advanced fibrosis (F3) and cirrhosis (F4) were determined to be liver stiffness measurement >9.4 kPa and >12.7 kPa, respectively, with AUROCs of 0.943 [0.909-0.976], 0.928 [0.888-0.968], 0.975 [0.952-0.999] and 0.942 [0.891-0.992], respectively. Sensitivity was 87.5% and 81,7%, 95.7% and 78.2%, specificity was 96.2% and 96.3%, 93.7% and 100%, respectively.

Conclusions
This study validates previously determined liver stiffness measurement cut points of 5.8 kPa and 7.8 kPa for F1 and F2 fibrosis and 9.4 kPa and 12.7 kPa to predict METAVIR F3 and F4 fibrosis in children. Transient elastography may help identify the stage of fibrosis in chronic liver diseases in children

DISCREPANCIES BETWEEN CLINICAL AND PATHOLOGICAL DIAGNOSIS IN GASTROENTEROLOGY

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Introduction

Clinical autopsies still represent a reasonable tool for quality control in hospitals and continue to reveal diagnostic problems at different departments, also primary place of malignancies is always detected despite modern methods od investigation (D.Wittschieber et al, 2012; S.Scwanga-Burger et al, 2012; H. Mashall et al, 2017; A.Lai et al, 2019).

Study Aims

Study aim was to analyse the mismatch of clinical and pathological diagnoses in gastrointestinal, biliary tract, liver and pancreas cases and its possible causes.

Methods

Sixty-three pathology records from RECUH, Pathology Center, clinical epicrisis and information from Doctors bureau were used to compare clinical and post-mortem diagnoses. We have evaluated time of hospitalization, laboratory tests and morphological specimens stained with H/E and some immunohistochemical markers. Results were analysed by Excel programme.

Results

In gastrointestinal tract diagnostic discrepancies were about gastric and duodenal ulcer (n= 10), intestinal gangrene (n=2) and gastric and colon carcinomas (n=8). As differential diagnoses in these cases were constituents of para-neoplastic syndrome. Missed diagnoses in pancreas were: 7 cancers, 9 pancreatitis. Instead of pancreatic pathologies clinicians mainly diagnosed liver and cardiac diseases. Mismatch in diagnostics of liver diseases were in 16 cases: 6 primary tumors, 7 cirrhosis, 3 steatosis. Pre-mortem diagnoses were mainly secondary tumors of liver. During hospitalization in biliary tract was not diagnosed: cholecystitis with and without stones (n=8) and adenocarcinoma of gall bladder (n=3). Causes of mismatch of diagnoses in clinics and pathology were mainly: too late hospitalization (33 %)-average hospitalization time was 1,5 days; objective difficulties (34,2 %) in cases with multiple concomitant diseases, also alcoholism; misinterpretation of laboratory tests (24,3 %) etc. Diagnostic errors in 27% took place in gastroenterology departments but others in the departments and hospitals of different profile.

Conclusions

The frequency of discrepancies in clinical and post-mortem diagnoses in gastroenterology in Riga does not differ from other European countries. But to change the situation in Latvia diagnostics and treatment of chronic diseases should be improved by family doctors. The great majority of patients were hospitalized too late, therefore they should be more involved and educated about their health care.

IMPLEMENTATION MECHANISMS OF OSTEOPENIC SYNDROME IN PATIENTS WITH CHRONIC PANCREATITIS AND HYPERTENSION

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Introduction

The combination of chronic pancreatitis and hypertension can lead to competitive calcium intake, that is, conditions for the development of osteoporotic states are created.

Study Aims

To establish the development of secondary osteopenic syndrome in patients with chronic pancreatitis and hypertension.

Methods

Seventy-five patients with chronic pancreatitis were examined, in 52 cases it was combined with hypertension. The duration of the history of chronic pancreatitis was within 2-15 years with an inter quarterly range of 4-7 years and a medial tendency of 5 years. Hypertension had a duration of 3 to 17 years and corresponded to the inter-quarterly range and medial tendency of chronic pancreatitis. Control indicators were obtained during examination of 20 practically healthy patients of the same gender and age. The condition of the bone tissue was evaluated by the content of osteocalcin, the total and tartrate-resistant acid phosphatases. Instrumental diagnosis of osteoporosis was carried out using dual energy X-ray absorptiometry (DEXA).

Results

X-ray absorptiometry established osteopenic conditions in 23 patients (32.1%) with comorbid pathology, osteoporosis was recorded in 11 examined and osteopenia in other cases. In the control group of such patients was 6 (21.7%), 2 of them with osteoporosis (8.7%). The study of osteocalcin showed an increase in its content in the main group in 51.9% of patients. Bone isoenzyme of alkaline phosphatase was increased in all patients with chronic pancreatitis and hypertension and in 30.4% of patients with isolated chronic pancreatitis. The content of tartrate-resistant acid phosphatase exceeded the norm in 67.3% of cases. Changes in bone mineral density not always were confirmed by quantitative changes in indicators of osteocalcin, alkaline phosphatase and tartrate-resistant acid phosphatase.

Conclusions

The comorbidity of chronic pancreatitis and hypertension creates the conditions for the formation of secondary osteoporosis, the development of which occurs mainly due to an increase in bone resorption and the preservation of synthesis processes, which must be taken into account when correcting diet and therapy. The combination of chronic pancreatitis and hypertension requires the prevention of osteoporotic conditions: include foods rich in calcium and vitamin D in the diet and use dietary supplements - calcium preparations.

THE PREVALENCE OF GASTROINTESTINAL SYMPTOMS IN YOUNG PEOPLE

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Introduction

Functional diseases of digestive tract - the most common pathology in the youth environment, the formation of which contributes to a level of anxiety and depression associated with adaptation to study at university.

Study Aims

Assess the prevalence of gastrointestinal symptoms in young people.

Methods

To assess the occurrence and characteristics of gastrointestinal symptoms an anonymous survey of 3478 students of the Omsk State Medical University who gave informed consent to participate in the study was conducted. The clinical trial protocol was approved by the Local Ethics Committee. The survey was conducted using the Russian version of the GSRS questionnaire through online forms. Processing of the results was carried out using statistical packages StatSoft Statistica v.6.0, SPSS 9.0.

Results

Among the respondents the majority were female (2820 people, 81.1%). The age of those participating in the study was from 17 to 34 years, the average age was 23.34 ± 6.28 years. Analysis of the results revealed the dominance of dyspepsia syndrome (2566 people, 73.78%) represented by symptoms such as rumbling in the abdomen, feeling full, bloating, belching of air, gas exhaustion through the intestines. In 989 people (28.44%) these symptoms were significant. The second most common syndrome was abdominal pain (2216 people, 63.71%). It should be noted that 446 (12.82%) of the respondents noted the presence of severe abdominal pain. In 996 (44.95%) individuals' abdominal pain was combined with diarrhea, in 1073 (48.42%) with constipation. It was revealed that in the group of people with severe abdominal pain stool disorders were significantly more frequent ($p < 0.005$): diarrhea in 270 (60.54%), constipation in 280 (62.78%). Isolated constipation occurred in 1307 (37.6%), diarrhea in 1172 (33.7%) of the respondents. Reflux syndrome occurred in 1636 (47.04%) of respondents while 270 (7.76%) of them had symptoms such as heartburn, belching acidic or bitter, nausea were significantly expressed.

Conclusions

We revealed a high prevalence of gastrointestinal symptoms in the youth environment which requires an analysis of the frequency and characteristics of symptoms in relation to eating habits and characteristics of mental status, as well as the development of measures to increase the health potential of students.

ESTABLISHING CUT-OFFS FOR NON-INVASIVE LIVER TESTS TO DETECT CIRRHOSIS AT A HIGH SENSITIVITY

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Introduction

Various non-invasive methods for liver cirrhosis detection have been gaining popularity recently. They include imagining techniques and formulas (combinations of various serum biomarkers which often are non-specific and readily available). For example, most popular formula is FIB-4 = (AGE X ASAT)/(Trombocytes X √ALAT). A clearly defined cut-off values for these formulas allows physicians to make a quick assessment of possible cirrhosis presence.

Study Aims

Evaluate theoretical cut-off values for various formulas that would offer at least 95% sensitivity in cirrhosis detection.

Methods

This is a retrospective record-review study of case files of 215 cirrhosis patients hospitalized in Riga East University Hospital from 2012 to 2017. Cirrhosis patients were divided in 5 groups based on etiology: alcoholic genesis[n=107;50%], hepatitis C virus(VHC) [n=69;32%], primary biliary cholangitis(PBC) [n=7;3%], hepatitis B virus(VHB) [n=4;2%], VHC + alcohol genesis[n=28;13%].

Results

Out of 215 patients, 125[58.1%] were males and 90[41.9%] females with mean age 53.6 years (± 12.36). We used following formulas: ASAT/ALAT(deRitis) ratio, BONACINI, FIB-4 and APRI. Obtained cut-offs for alcohol genesis cirrhosis subgroup: FIB 4 at cut-off of 1.63[n=74]; BONACINI at 5 points[n=66]; APRI at 0.32[n=74]; deRitis not usable for alcohol genesis cirrhosis. For the VHC group: FIB-4 at 1.48[n=54]; BONACINI at 4 points[n=49]; APRI at 0.32[n=54]; deRitis at 0.8[n=54]. For the VHC+alcoholic genesis group: FIB-4 at 2.75[n=21]; BONACINI at 3 points[n=20]; APRI at 0.26[n=21]. For the group combining all 5 etiologies: FIB-4 at 1.63[n=157]; BONACINI at 5 points[n=143]; APRI at 0.32[n=157]; deRitis(excluding 2 alcoholic genesis groups) at 0.8[n=52].

Conclusions

The obtained cut-offs varied depending on the etiology of cirrhosis. For FIB-4 they would range from 1.48 - 2.75, for APRI from 0.26 - 0.32, for BONACINI from 3-8 points; for deRITIS it was 0.8 in both of the subgroups (VHC and VHC+PBC+VHB) where it could be used. In literature, proposed cut-offs for FIB-4 is 1.45, for APRI it is 1.5, for BONACINI ≥8 and for deRITIS it is 1. According to our results, only FIB-4 could be beneficial in detection of cirrhosis with 95% sensitivity as the obtained cut-offs for other formulas would be with too low specificity to have clinical relevance.

GENETIC PREDICTORS OF CARDIOVASCULAR RISK INTENSIFICATION IN PATIENTS WITH COMORBIDITY OF CHRONIC PANCREATITIS AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Introduction

Internal organs various diseases combined course is being a significant problem nowadays

Study Aims

The aim of the current study is to determine of genotypic variability of I/D polymorphism of the angiotensin-converting enzyme (ACE) gene as a genetic marker of cardiovascular risk in patients with comorbidity chronic pancreatitis (CP) and chronic obstructive pulmonary disease (COPD).

Methods

One hundred forty eight patients have been examined: 76 CP patients in combination with COPD have been regarded as a main group, 72 patients with an isolated course of COPD made up a compared group. Control values were obtained while examining 50 almost healthy patients of the same age and gender. The latter made up a control group. The I/D polymorphism of the ACE gene was amplified by polymerase chain reaction (PCR) with electrophoresis of agarose gels. Statistical data has been performed on workstation by means of software "Microsoft Excel" and "STATISTICA 6.0".

Results

It has been found out that in control group genotype I/I was recorded in 8 patients (16%), genotype I/D - 27 (54%) and pathological genotype D/D - in 15 individuals (30%). In patients with isolated COPD distribution of genotypes was as follows: I/I - 18.1% (13 patients), I/D - 45.8% (33 patients) and D/D - 36.1% (26 people). But there were no significant differences in genotypes frequency between patients with isolated COPD and control group (df=2, $\chi 2$=0,801, p=0,669). At the same time patients with comorbid pathology are characterized by the deviations of frequency of the genotypes: I/I genotype was recorded in 11.8% of cases (9 patients), I/D - 31.6% (24 patients) and D/D - 56.6% (43 people). There were significant differences in distribution of genotypes between patients with comorbidity and compared group (df=2, $\chi 2$=6,233, p=0,044) and control subjects (df=2, $\chi 2$=8,760, p=0,013).

Conclusions

Thus, development and course of COPD in patients with chronic pancreatitis occurs under conditions of redistribution of genotypes of the ACE gene I/D polymorphism by increasing of frequency of the pathological genotype D/D (56,6%). The presence of such deviations in genotype distribution of the ACE gene I/D polymorphism indicates a significant genetic predisposition to the development of cardiovascular events in patients with the comorbidity of chronic pancreatitis and chronic obstructive pulmonary disease.

CIRRHOSIS DETECTION SENSITIVITY IN NON-COMMERCIAL FORMULAS

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Introduction

Liver biopsy for decades has been the "imperfect" gold standard for detection and staging of fibrosis for liver. It has many drawbacks, ranging from complications to bias made by sample observer. Other options include imagining techniques and various combinations of biomarkers (formulas), for example, deRitis index, FIB-4 etc.

Study Aims

Find the most sensitive formulas for detecting cirrhosis of various etiologies which don't require specific biomarkers.

Methods

This is a retrospective record-review study of case files of 215 cirrhosis patients hospitalized in Riga East University Hospital from 2012 to 2017. Cirrhosis patients were divided in 5 groups based on aetiology: alcoholic genesis[N=107;50%], hepatitis C virus(VHC) [N=69;32%], primary biliary cholangitis(PBC) [N=7;3%], hepatitis B virus(VHB) [N=4;2%], VHC + alcohol genesis[N=28;13%].

Results

Out of 215 patients, 125[58.1%] were males and 90[41.9%] females with mean age 53.6 years (± 12.36). Formulas evaluated are – ASAT/ALAT (deRitis) ratio, POHL, FIB-4, BONACINI and APRI. In the group combining all cirrhosis types, formulas with the highest sensitivity was FIB-4 index with 96.8% at cutoff 1.45[N=157]. Second most sensitive was still FIB-4 at a cut-off of 3.25 with 66.9%[N=157] followed by BONACINI with 63.6%[N=143]. For VHC group, the best was FIB-4 at cut-off 1.45 with 96.3%[N=54] followed by DeRitis index with 88.9% at cut-off 1[N=54]. BONACINI index had 67.3% of sensitivity for VHC[N=49]. For toxic genesis group – FIB-4 at cut-off of 1.45 had 97.3%[N=74] and BONACINI with 59.1%[N=66]. Finally, the highest detection value in VHC and toxic genesis combined group was shown by FIB-4 at cut-off 1.45 with 95.2%[N=21] and BONACINI with 75%[N=20], closely followed by POHL with 71.4%[N=21] and APRI with 71.4%[N=21] as well.

Conclusions

Overall, the most consistent formula in all the groups was FIB-4 at cut-off 1.45; at cut-off 3.25(higher cut-off means higher specifity) it still retained its high sensitivity. Second most sensitive was BONACINI index and deRITIS (only for VHC). POHL and APRI were the least sensitive. Since current consensus for non-invasive liver fibrosis testing recommends using either 1 non-invasive serum test combined with imaging technology such as elastography or at least 2 different serum tests, we would recommend using FIB-4 and BONACINI indexes to aid in cirrhosis detection.

THE ASYMPTOMATIC CARRYING OF PATHOGENIC TYPES OF ESCHERICHIA COLI AND ITS ASSOCIATION TO RISK FACTORS AND ALLERGIES

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Introduction

There are a variety kind of pathogenic E.coli: enteropatoghenic(EPEC), enterotoxigenic(ETEC), enteroaggregative(EAEC), enterohemorrhagic(EHEC) and E.coli O157 that could cause gastroenteritis, some of them even hemolytic uremic syndrome, as well as be asymptomatic commensals.

Study Aims

To determine the prevalence of pathogenic E.coli in children without gastrointestinal symptoms and to analyze the association of pathogenic E.coli with allergic diseases and risk factors (delivery type, use of antibiotics, number of family members).

Methods

The study was performed at Children's Clinical University hospital, alergologist consultations, primary health care centers and kindergartens in Riga and its district. Parents were asked to answer a questionnaire and take a sample of child's feces. In a molecular biology laboratory DNA was extracted from feces by polymerase chain reaction, thus identifying the pathogenic types of E.coli.

Results

The final patient sample contained 245 children (52%(128/245) girls) aged 0,5 to 8 years (mean 4,54 SD±2,1; median 4,5). In the total sample 16%(25/39) of isolates were positive for pathogenic E.coli, 64.1%(25/39) were EPEC. Significantly more often pathogenic E.coli was found in children without allergy compared to children with allergy (69%(27/39) versus 31%(12/39), p=0.036). Children positive for pathogenic E.coli had more often at least one sibling (67%(26/39) versus 33%(13/39), p=0,16) and lived in a larger family: 28%(11/39) in the family of two to three people, while in 72%(28/39) in the family of more than three people (p=0.10). Six children (2.4%(6/245)) carried simultaneously several types of pathogenic E.coli: four children had two types simultaneously: EPEC+EHEC; EHEC+O157 and EPEC+O157, two children carried three types simultaneously: EPEC+EHEC+O157 and EPEC+EHEC+ETEC. Prevalence of pathogenic E.coli did not differ significantly in respect to: use of antibiotics during pregnancy, delivery type, parental education, duration of exclusive breastfeeding, antibacterial therapy.

Conclusions

Asymptomatic carrying of pathogenic E.coli was observed in represented population. More often pathogenic E.coli was detected in children without allergy, which implies the potential association of pathogenic E.coli with the immunological aspect of the hygiene hypothesis. Pathogenic E.coli types were detected more often in larger families, indicating potential exposure to a wider range of microorganisms. The causes, potential interactions and clinical sequencing of asymptomatic carrying of pathogenic E.coli should be studied in more detail.

THE LEVEL OF FIBROBLASTS GROWTH FACTOR-19 IN PATIENTS OF DIFFERENT AGE WITH COMORBID COURSE OF TYPE 2 DIABETES AND BILIARY PATHOLOGY

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Introduction
Despite the advances of modern medicine, the prevalence of metabolic disorders is constantly increasing. The particular interest of researchers is attracted to fibroblast growth factor – 19 (FGF-19), which has regulatory effects on carbohydrate metabolism homeostasis, as well as on enterohepatic regulation of bile acid homeostasis.

Study Aims
To analyze age-specific features on the level of FGF-19 in patients with comorbid course of type 2 diabetes mellitus and biliary pathology.

Methods
A total of 37 patients with type 2 diabetes mellitus and chronic noncalculous cholecystitis were examined in the «Regional Clinical Hospital» (Kharkiv, Ukraine). The patients were divided into subgroups according to age. The group 1a included 21 patients with a combination of type 2 diabetes mellitus and chronic cholecystitis middle-aged (44-60 years). The group 1b consisted of 16 patients with type 2 diabetes mellitus and chronic cholecystitis elderly (60-75 years). The control group consisted of 20 healthy donors. The donor group was representative of the age and number of male and female probands.

Results
In patients with type 2 diabetes and chronic cholecystitis the level of FGF-19 was lower than in control group (71,85±17,78 pg/ml and 163,92±6,67 pg/ml, $p<0,05$). In patients of group 1a, which included patients with type 2 diabetes and chronic cholecystitis middle-aged (age was 52.19 ± 0.72 years), a significant increase in serum FGF-19 by 11.5% was found compared with patients group 1b represented by patients with comorbid course of type 2 diabetes and chronic cholecystitis in the presence of the elderly (age was 66.22±1.65 years) ($p<0,05$). The level of FGF-19 in group 1a was 69.74 ± 4.05 pg/ml, the level of FGF-19 in group 1b was 59.68±3.01 pg/ml ($p<0,05$). We found a correlation of the opposite nature between the FRF-19 level and the age of the patients in the presence of a combined course of type 2 diabetes and chronic cholecystitis ($R=-0.37$; $R=-0.48$, $p<0,05$).

Conclusions
The study revealed a decrease of the level of FGF-19 with age in patients with comorbid course of type 2 diabetes mellitus and biliary pathology. In the groups of elderly patients, the level of FGF-19 was significantly lower than in the patients of middle age.

RISK FACTORS OF ANASTOMOTIC LEAKAGE AFTER OPEN SURGERY FOR RECTAL CANCER

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Introduction

Surgery as a cornerstone and total mesorectal excision (TME) as the golden standard are both still under debate in rectal cancer (RC) management. The impact of patient habits and tumor features on anastomotic leakage (AL) is a topic for continual discussion.

Study Aims

The objectives of the retrospective study were to define risk factors for AL and to report clinical consequences of AL in a large cohort of patients who underwent open radical TME with an anastomosis by experienced surgeon(s) using standardized technique of surgery for RC.

Methods

All 249 patients underwent radically curative elective TME with a following creation of an anastomosis at a single unit between January 2010 and December 2014. Patient and neoplasia characteristics, details of surgery, fashion of the anastomosis, and early postoperative events were recorded in database prospectively. Univariate and multivariate analysis were applied to identify risk factors for AL.

Results

In our series, the AL rate was 7.2% (18 patients), and mortality due to the sepsis was 11.1% (2 of 18 patients). In univariate analysis: tumor size and absence of preventive stoma (PS) were associated with increased AL rate ($p<0.05$), whereas American Society of Anesthesiologists (ASA) score and tumor location above the anal verge showed borderline clinical significance ($p=0.92$). In multivariate analysis: neoadjuvant chemoradiotherapy ($p=0.01$), tumor diameter and location, as well as absence of a PS and endoanal tube (EAT) were significantly associated ($p<0.001$) with AL.

Conclusions

Patients with low bulky rectal cancers are at high risk for AL. Proximal fecal deversion – PS and EAT placement after anastomosis creation – significantly decrease the rate of clinical AL and subsequent reintervention after TME.

POTENTIAL RISK FACTORS IN PATIENTS WITH DRUG – INDUCED LIVER INJURY: SINGLE CENTER EXPERIENCE

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Introduction

Drug-induced liver injury (DILI) is a well-recognized problem and symptomatically can mimic acute and chronic liver diseases. Women and older individuals may be more susceptible to DILI. The concomitant use of two or more drugs may be one of the most important factors influencing drug metabolism. Hepatocellular injury is the most common pattern seen with NSAID hepatotoxicity, and diclofenac is the most frequently implicated agent. Also, there are few reports in the literature related to sulfonylurea gliclazide- induced hepatotoxicity. Alcohol abuse and malnutrition predispose to DILI in acetaminophen toxicity. Still remain many inter-individual differences that affect susceptibility, including genetic polymorphisms, gender and nutritional status.

Study Aims

To identify potential risk factors in patients with confirmed DILI diagnosis and compare them to control group (patients with compensated liver cirrhosis (MELD score ≤15)) in Latvia.

Methods

Retrospective record-review study of case files in Riga East University Hospital January 2012 to June 2017. An originally created study protocol was completed for each patient and data was entered into the database with consecutive statistical analysis using SPSS 20.0.

Results

Two hundred seventy one patient, 13 (5%) DILI patients and 258 (95%) in control group were analysed. In DILI group 7 (54%) were females and 6 (46%) – males with mean age 50.65 ± 14.75, control group - 117 female (45%), 141 males (55%) with mean age 55.84 ± 13.28. As a potential DILI risk factors, concomitant drug usage was found: antidiabetic drugs in 12 patients (3 (1.1%) in DILI group vs 9 (3.3%) in controls), NSAIDs – 10 patients (5 (1,8%)-each group), in DILI group 3 (1.1%) patients were using acetaminophen, 2 (0.7%) patients–statins. The most common antidiabetic drug was gliclazide – 9 patients (3 (1.1%) in DILI group vs 6 (2.2%) in controls), and Diclofenac from NSAIDs – 4 patients (3 (1.1%) in DILI group vs 1(0.4%) in control group). Potentially harmful combinations of medications were: Lamotrigine, Quetiapine, Vortioxetine, PEG-INF, Ribavirin in one case and rosuvastatin, metformin and diclofenac in othercase. Alcohol intake were found in 97 patients (DILI n=5).

Conclusions

There were slight female predominance in DILI group. Most commonly used medications in DILI group were NSAIDS, acetaminophen and antidiabetic drugs.

CORRECTION OF VITAMIN D DEFICIENCY IN CHILDREN WITH CYSTIC FIBROSIS. MULTICENTER STUDY

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Introduction

Cystic fibrosis (CF) is the most common monogenic disease in Caucasians caused by a mutation of the gene CFTR, characterized by lesions of the exocrine glands vital organs and has usually severe course and bad prognosis. The relevance of studying the role of vitamin D in patients with CF is associated with the features of the pathogenesis of the disease. According to the 2016 study, the incidence of vitamin D deficiency and insufficiency patients with CF in the Moscow region was 78.5%. From 2016 to 2018 patients of the Russian Center of cystic fibrosis were prescribed prophylactic doses of vitamin D in accordance with the National consensus on cystic fibrosis.

Study Aims

To assess the level of vitamin D in children of different ages with CF throughout the year in 3 regions of the Russian Federation (Moscow region, South of Russia, Siberia).

Methods

1030 children were examined: 584 - CF patients (314-Moscow region, 122-Krasnoyarsk, 144-Stavropol), the control group consisted of 446 healthy children (151-Moscow region, 137-Krasnoyarsk, 158-Stavropol). The children were divided into 3 age groups (0-3 years, 4-10 years, 11-18 years). Determination of the concentration of 25 (OH)D was carried out by enzyme immunoassay using kits from EuroimmunAG (Germany) on a flatbed spectrofluorometer EnSpire (PerKiNElmer, Finland).

Results

The comparative analysis of the data from the general group, which included patients with CF regardless of their place of residency, revealed average level of 25(OH)D (M) in patients with CF of various ages (M 0-3 years - 35.7 ng/ml, M 3-10 years - 31.08 ng/ml, M 11-18 years - 24.7 ng/ml) compared to the group of healthy children (M 0-3 - 41,36 ng/ ml, M 3-10 years - 32,37 ng/ml, M 11-18 years 26,94 ng/ml).

Conclusions

The administration of high prophylactic doses of vitamin D in accordance with the National consensus on cystic fibrosis can compensate for vitamin d deficiency in the most part of patients with cystic fibrosis. However, most adolescents with CF, as well as healthy children (11-18 y.o.) had a decreased serum level of 25(OH)D.

REPEATABILITY OF MAGNETIC RESONANCE MEASUREMENTS USED FOR ESTIMATING THE INFLAMMATORY ACTIVITY IN CROHN'S DISEASE PATIENTS

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Introduction

Magnetic resonance (MR) may be used as an alternative to colonoscopy for assessment of inflammatory activity in Crohn's disease. However, MR indices of activity are complex estimations consisting of several measurements that are not standardized.

Study Aims

To assess the repeatability of magnetic resonance measurements performed for estimating the activity of the bowel wall inflammation in patients with active Crohn's disease in the terminal ileum.

Methods

Five adults (23-57 y.o.) and 12 children (11-17 y.o.) with active terminal ileitis were enrolled in the study. The inflamed bowel walls were divided into 3 cm long segments (n=32 in adult patients, n= 46 in children). In all the segments, the following measurements necessary for calculating Crohn's disease activity indices – MaRIA index and Clermont score – were assessed: apparent diffusion coefficients (ADC) for diffusion-weighted imaging (DWI) and for diffusion-weighted imaging with background body signal suppression (DWIBS) (mm2/s), bowel thickness (mm), wall signal enhancement before the gadolinium contrast media enhancement (WSI-preGd), and relative contrast enhancement (RCE). The presence or absence of ulcers was also assessed. All the measurements were performed by one researcher and repeated by the same researcher in 2 months, intraobserver variability for DWI-ADC, DWIBS-ADC, bowel thickness, WSI-preGd, RCE, was assessed with paired t-test. The variability in estimation of presence or absence of ulcers was assessed with Pearson $\chi 2$ test.

Results

The absolute difference between the first and second ADC-DWI measurement was 0.008 mm2/s (1%), p=0.65; SD was 0.34 (0.6%). The absolute difference between the first and second ADC-DWIBS measurement was 0.048 mm2/s (4%), p=0.23; SD was 0.15 (0.1%). The absolute difference between the first and second WSI-preGd measurement was 12.61 signal intensity (SI) units (8%), p=0.06; SD was 59.24 (50%). The absolute difference between the first and second RCE measurement was 5.41 SI units (8%), p=0.64; SD was 103.94 (5.6%). For the assessment of presence of bowel ulcers, the Pearson $\chi 2$ was 13.70, $p<0.0005$.

Conclusions

There is no systematic difference (bias) between two measurements performed by a single observer in assessment of DWI- ADC, DWIBS-ADC, WSI-preGd and RCE measurements whereas there was systematic difference in assessment of presence of ulcers visible in MRI.

EVALUATION OF APPENDICAL MICROBIOTA IN CHILDREN WITH ACUTE COMPLICATED AND UN COMPLICATED APPENDICITIS

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Introduction

The function of the appendix is largely unknown, but its microbiota likely contributes to its function. Alterations in microbiota may contribute to appendicitis. Some hypotheses hold that the appendix plays a critical role in the education, development and maturation of the immune system. Other studies suggest that the appendix is hypothesized as a beneficial bacterial reservoir; however, its microbial role only recently is being discussed as the etiology of appendicitis.

Study Aims

The purpose of this study is to determine the most common microorganism which causes pediatric acute complicated (AcA) and uncomplicated appendicitis (AnA) and therefore, determine the ideal treatment therapy.

Methods

Intra-luminal cultures from the proximal and distal ends were collected from 79 operated appendiceal specimens. Peritoneal cavity cultures of these operated patients were also examined. Blood serum samples were collected in all the patients for Yersinia enterocolitica. Extra, submucosa appendical samples collected in 14 patients.

Results

Escherichia coli was overall the most prominent pathogen in both AnA and AcA (in 25 and 23 cases, respectively), followed by Pseudomonas aeruginosa in AcA specimens – 12 cases. Other isolates that were recorded included Klebsiella pneumoniae and Citrobacter braakii. Patients with gangrenous appendicitis all had additional growths with P.aeruginosa, K.pneumoniae or Citrobacter freundi. E.coli was most prominent in specimens collected from the abdominal cavity (17 cases), while the other bacteria were not more often than 1-2 cases. The peritoneal culture results showed statistical significance between the two groups, 97,46% of the cases in AcA and 2,53% in AnA ($p<0,001$). Submucosa cultures were collected from 14 patients (6 AcA and 8 AnA). 79% showed similar results to the distal and proximal part, 7% results were negative and 14% had different results. In 67% of the cases, submucosa results were consistent with abdominal findings. Yersinia enterocolitica was negative in the serum in all cases.

Conclusions

Further research is needed to determine whether these organisms directly cause appendicitis or rather proliferate as secondary consequence of appendiceal inflammation. There is no conclusive evidence that differentiates the microbiota from each appendiceal anatomical location. AcA seems to have a positive relation to peritoneal microbiota as well as to specific pathogens.

PATIENT WITH CONGENITAL GENITOURINARY MALFORMATION AND ADVANCED SIGMOID ADENOCARCINOMA

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Introduction

Bladder exstrophy is a rare congenital anomaly accounting for 2 – 3,3 cases per 100 000 births. It can be managed surgically, bet even after successful operation, patients may develop serious long-term complications.

Study Aims

To highlight a case report of a patient with congenital bladder exstrophy who underwent ureterosigmoidostomy and developed advanced adenocarcinoma.

Methods

Case report presentation.

Results

The patient, 45-year old male, was born with bladder exstrophy that required surgical reconstruction. Ureterosigmoidostomy was performed at the age of 4 months. 20 years later, he suffered from an episode of acute ascending pyelonephritis that lead to right-sided nephrectomy. In the last decades he had no further complications and his medical history is insignificant otherwise. In spring 2017, he complained about hematochezia which was attributed to hemorrhoidal disease. In November 2017, he was admitted to the emergency department due to nausea, vomiting and lower abdominal pain. At the time of admittance, he was found to have acute kidney injury due to hydronephrosis. Patient received acute hemodialysis. Hydronephrosis was resolved by percutaneous nephrostomy and after that kidney function recovered. Colonoscopy showed neoplasm at the site of ureterosigmoidostomy and the biopsy confirmed low grade adenocarcinoma. In January 2018, sigmoid resection was performed and ileum conduit was created. Postoperative histopathological specimen examination showed invasive growth and spread. The patient started palliative chemotherapy. The disease progressed leading to multiple infectious and cancer related complications, that lead to the patient death.

Conclusions

The patient suffered from the two most common complications of ureterosigmoidostomy - kidney injury and aggressive malignancy. Henceforth, we suggest that sigmoidoscopy screening should be mandatory at tight intervals for patients who underwent ureterosigmoidostomy.

ERADICATION OF HELICOBACTER PYLORI INFECTION. ADVERSE EFFECTS OF TRIPLE THERAPY

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Introduction
The main cause of peptic ulcers, chronic gastritis and gastric neoplasms is Helicobacter pylori (Hp) infection. The eradication of Hp is getting less effective due to increasing resistance to antibiotics.

Study Aims
To investigate the adverse effects of clarithromycin-based eradication regimen in patients with Hp-positive duodenal ulcer.

Methods
The study included 50 Hp-positive patients with duodenal ulcer. Hp infection was confirmed histologically examination and by Breath HELIK-Test. The eradication therapy consisted of 10-days twice a day oral administration of PPIs in standard dose, amoxicillin 1000 mg, clarithromycin 500 mg, then 20-days twice a day PPIs. A negative histological examination and Breath HELIK-Test performed 4-12 weeks after treatment, confirmed therapeutic success.

Results
Before the treatment, 82% of patients had pain syndrome and 70% - dyspeptic complaints. During the treatment in 50% of patients increased the frequency of dyspeptic complaints and in 42% of them such complaints appeared for the first time and continued during 1.5 months after treatment. The eradication rate was 70%. Healing of duodenal ulcer was noted in 82% cases. The level of basal pH was significantly ($p < 0.001$) increased in the corpus of stomach from 1.39 ± 0.41 to 1.83 ± 0.31, in antrum 1.97 ± 0.29 to 2.52 ± 0.34 and in the duodenum from 4.09 ± 0.59 to 5.14 ± 0.95. After treatment significantly increased the levels of alanine transaminase from 36.78 ± 0.78 to 42.52 ± 1.22 IU/L , aspartate transaminase from 36.36 ± 0.79 to 40.76 ± 1.27 IU/L, alkaline phosphatase from 96.90 ± 1.37 to 101.24 ± 2.17 IU/L, and triglycerides from 1.57 ± 0.07 to 1.72 ± 0.10 mmol/l, which must be noted as drug-related side effects of clarithromycin-based triple therapy. Increase of the levels of bilirubin from 19.41 ± 0.24 to 20.88 ± 0.34 mmol/l and cholesterol from 5.17 ± 0.16 to 5.56 ± 0.19 mmol/l were not statistically significant.

Conclusions
Standard triple eradication therapy based on clarithromycin has low efficacy (70%), causes or increases the frequency of dyspeptic complaints associated with the use of antibiotics, has a hepatotoxic effect.

USE OF INTESTINAL ANTIBIOTIC RIFAXIMIN AND PROBIOTICS IN TREATMENT OF PATIENTS WITH DIVERTICULAR DISEASE

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Introduction
Diverticular Disease is a common clinical condition with a dramatic increasing of the prevalence among industrialized countries. Recent studies pointed out the role of gut microbiota imbalance in promoting diverticular formation and inflammation. Therefore, to evaluate the possible role of probiotics and antibiotics in the management of this condition is actual.

Study Aims
To evaluate efficacy of rifaximin and probiotics in patients with diverticular disease of the large bowel.

Methods
In this study 45 patients with diverticular disease were examined. Colonoscopy with biopsies, colonic irrigation with barium suspension, esophagogastroduodenoscopy with biopsies, abdominal ultrasonography and study of gut microflora composition were performed for all patients. Treatment included combined use of selective intestinal antibiotic rifaximin 2 tablets twice a day for seven days, probiotics containing 3,025 billion bacteria Lactobacillus bulgaricus DDS-14, Lactobacillus rhamnosus, Lactobacillus acidophilus DDS-1 and Bifidobacterium for one month, twice a day.

Results
Microbiological studies of feces revealed a large bowel dysbiosis in all examined: an increase of the level of conditionally pathogenic microflora in 92% of cases, a decrease of the obligatory group of bacteria in 94% of cases. On the 6th-7th days of antibiotic use, conditionally pathogenic gut microflora returned to normal level in 81% of cases. Microbiological analysis of feces performed after treatment confirmed a decrease of the level of conditionally pathogenic microflora in 90% of cases to acceptable levels and an increase of the obligatory group of bacteria to normal values in 87% ofpatients.

Conclusions
Gut dysbiosis of varying degrees was revealed in all patients with diverticular disease of large bowel. Rifaximin has a high antibacterial activity against the conditionally pathogenic intestinal microflora and can be used in the treatment of such patients. Probiotics containing Lactobacillus bulgaricus DDS-14, Lactobacillus rhamnosus, Lactobacillus acidophilus DDS-1 and Bifidobacterium bifidum, can be recommended in the treatment of patients with diverticular disease of the large bowel.

PROTON PUMP INHIBITOR USE AND HOSPITAL STAY IN PEPTIC ULCER BLEEDING PATIENTS

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Introduction
Peptic ulcer bleeding is a complication of peptic ulcer disease and also a common cause of non-variceal upper gastrointestinal haemorrhage. High-dosage proton pump inhibitors (PPIs) is an evidence-based recommendation for early medical treatment.

Study Aims
The objective of this pilot study was to evaluate PPI use and length of hospital stay in peptic ulcer bleeding patients.

Methods
A descriptive pilot study with retrospective data collection from patient files from the Clinical University Hospital in Riga, Latvia.

Results
Analysis of 48 patients' medical cards was performed. Regarding PPIs given in admission, 55% (n=24) of patients were receiving an intravenous bolus of 80 mg and 39% (n=17) were receiving no PPIs at all. A negative, statistically significant correlation was discovered between the length of hospital stay and the total PPI dosage (Spearman's ρ -0.334, p= 0.027) given in admission. Also, a statistically significant difference between the median length of hospital stay in PPI bolus groups 0 mg (8 days) and 80 mg (5 days) was detected, p= 0.014. The median lengths of hospital stay were statistically significantly different between very early (5 days) and delayed (8 days) timing of performed endoscopy/laparotomy, p= 0.010. The distribution of the duration of hospital stay was the same across categories of sex, admission time and presence of perforation, as well as, across the three Forrest categories (high-risk classes, class IIb and low-risk classes) and different locations of ulcers. There was no statistically significant correlation between hospital stay and patient's age, blood pressure, pulse, blood urea nitrogen, haemoglobin, Glasgow-Blatchford Score, PPI infusion dose, PPI discharge dose or number of blood units given.

Conclusions
Many peptic ulcer bleeding patients were receiving not enough PPIs before upper gastrointestinal endoscopy, according to admission data. Patients, who received more PPIs in total in admission had shorter hospital stays. It would be recommendable to administer 80 mg omeprazole bolus for all peptic ulcer patients in admission. No overuse of PPI bolus doses was detected.

ASSESSING LIVER FIBROSIS IN PATIENTS WITH HIV AND HIV/HCV COINFECTION DURING TWO YEARS

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Introduction

There are 2.3 million people worldwide living with HIV and viral hepatitis C (HCV) coinfection. HIV/HCV coinfection accelerates the progression of liver fibrosis and increases the risk of liver-related death comparing to mono-infections. Some studies based on repeated liver biopsy showed that liver fibrosis progresses one or more stages during three years in about 40 % of patients with HIV/HCV. It progresses more slowly in the case of successful antiretroviral treatment (ART).

Study Aims

To assess the progress of liver fibrosis during two years by using noninvasive liver fibrosis markers.

Methods

The retrospective study included 58 patients with HIV/HCV and 48 patients with HIV aged from 24 to 62 (mean age was 39 ± 9). ART was used in 65 patients. CD4+ cells count, and HIV viral load were detected in patient's plasma. For assessing liver fibrosis, hyaluronic acid (HA) and cytokeratin 18 neo-epitope (CK18) levels in plasma (ELISA) were used. Advanced fibrosis was detected by "cut-off" of HA ≥ 75 ng/ml and CK18 ≥ 200 U/l. A mixed regression analysis was used for the assessment of the progress.

Results

At the baseline, there were no differences between two groups in CD4+ and viral load. HA and CK18 demonstrated significant differences. In HIV group, HA was 22.65 ng/ml (IQR: 13.50; 28.50) and CK18 was 136 U/l (IQR: 115; 169). In HIV/HCV group, HA was 29.78 ng/ml (IQR: 16.27; 52.30) and CK18 was 181 U/l (IQR: 125; 310). Advanced liver fibrosis was observed in 23 (45%) and 8 (20%) of patients with HIV/HCV and HIV, respectively. The mixed regression analysis revealed no change during two years in HA, $F(6;22.0)=1.96$, $p=.115$, CK 18, $F(6;15.5)=2.03$, $p=.123$, and CD4+, $F(6;74.3)=0.18$, $p=.982$. HCV associated with lower CD4+ and higher CK 18 and HA levels. In addition, HA was higher in patients with HCV without ART.

Conclusions

Assessed with noninvasive markers, the progress of liver fibrosis was not significant during two years in HIV/HCV and HIV groups. It concurs with the results of a study with a similar design.

PHARMACOLOGICAL CORRECTION OF ALCOHOLIC DAMAGE TO THE LIVER OF RATS WITH HERBAL DRUGS

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Introduction

Alcohol causes various changes in the liver, differing in development mechanisms and clinical manifestations. Because alcohol is etiological factor of liver damage, the finding new, more effective pharmacological preparations is necessary.

Study Aims

To experimentally substantiate using herbal drugs to protect liver during alcohol intoxication.

Methods

To study the effect of herbal drugs on liver during experimental alcohol damage, was selected carlsil and lesbichol, proanthacyanidin- isolated from the aerial part of Geranium saxatile. Chronic alcohol intoxication was modeled by intragastric insertion of ethanol for 28 days daily in 50 white rats. Animals in accordance with the scheme of the experiment were divided into 5 groups: 1 - intact; 2- control; 3- treated with ethanol + proanthacyanidin; 4 - treated with ethanol + karsil; 5- received ethanol + lesbichol. The content of malondialdehyde (MDA) was determined in the homogenate of the liver (L.I.Andreeva;1988) and catalase activity (Koralyuk M.A.;1988). Digital material was processed by the method of variation statistics using the statistical software package «Statistika 6.0».

Results

Studies have shown a statistically significant 4.29-fold increase in the content of MDA in liver homogenate relative to indicators of intact rats. Pharmacotherapy of chronic alcoholic liver damage with geranil, carlsilum, and lesbichole significantly slowed lipid peroxidation (LPO) processes, helping to reduce the content of MDA 4; 3.75 and 3.8 times relative to the indices of an untreated group. The MDA content and catalase activity in the treated group were closer to intact group. The cause of changes in the activity of catalase in the liver of experimental animals, is an excessive amount of reactive oxygen species and free radicals, MDA formed lipid peroxidation, apparently, oxidative modification of the functional groups of enzymes, conformational rearrangements of their molecules, dissociation of proteins into subunits, amplification processes of their degradation. The data obtained indicate the presence of antioxidant properties of the compounds used.

Conclusions

Experimental pharmacotherapy with new drugs from the group of geranyl proanthacyanidins, bioflavonoids - karsil and lesbichol leads to a decrease in LPO intensity and an increase in catalase activity. Using of these drugs leads to the restoration of the structural and functional parameters of hepatocytes.

CLINICAL DATA ASSOCIATION WITH SEVERITY OF ACUTE AND ACUTE RECURRENT PANCREATITIS

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Introduction

Acute pancreatitis (AP) is pancreatic inflammation that can cause severe complications. The incidence is 5 – 30/100,000. Considering the potential complications of AP, the total mortality rate is 5%.

Study Aims

The aim was to determine the prevalence of moderate severe and severe AP and identify the association of the clinical data (etiological factors, Neu/Ly, Plt/Ly, CRO/albumin ratio, levels of lipids, co-morbidity and medication used before, previously known recurrent acute pancreatitis) with severity grades of AP as in future possible predictive factors.

Methods

This is a prospective cross-sectional study that included 33 patients (17 males, mean age 57 years (range 18 – 89) from Pauls Stradins Clinical University Hospital Gastroenterology, hepatology and nutrition therapy center. Inclusion criteria: patients signed agreement of participation, ≥18 years old, with at least 2 out of 3 criteria: typical abdominal pain; elevated serum amylase/lipase >3 times; typical changes in examination in imaging. A pre-developed questionnaire was used to collect the results of patients' clinical parameters. Severity of AP were evaluated by imaging data and Ranson's criteria. The collected data were analyzed using SPSS Statistics 22. Tests used in analysis - Chi-square, one-way ANOVA for univariate analysis, logistic regression for multivariate analysis to evaluate the association between risk factors and severity of AP.

Results

From all 33 patients moderately severe grade of AP were 39% (n=13), severe 3.0% (n=1), other 58% (n=19) were mild AP. No cases of mortality were reported. Factors such as etiology, BMI, statin therapy, Charlson's Comorbidity index and levels of total cholesterol, Neu/Ly, Plt/Ly, CRP/albumin ratio did not show significant association with severity grades of AP. Univariate analysis only reported recurrent AP showed significant result (ρ=0,035). 7 from total of 10 with previously reported recurrent AP had moderately severe AP. Multivariate analysis included factors such as recurrent AP, Neu/Ly, Plt/Ly, CRO/albumin ratio. Still no clinical parameter showed significant level, excluding recurrent pancreatitis (ρ=0,05).

Conclusions

The results of our study present high prevalence of moderate severe grade AP in small cohort of patients. Previously reported AP episodes were significantly associated with moderate severe grade of AP. No other clinical parameters showed significant association with more severe AP.

PLASMA LEVELS OF BACTERIAL LPS AND FIBROSIS AND APOPTOSIS MARKERS IN PATIENTS INFECTED WITH HCV AND HIV

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Introduction

It is considered that Human immunodeficiency virus (HIV) and Viral Hepatitis C (HCV) infections are associated with increased intestinal permeability and consequent microbial translocation that could contribute to systemic immune activation. This process also could be supported by liver fibrosis and apoptosis, leading to enhanced disease progression.

Study Aims

We aimed to analyse differences of bacterial Lypopolysaccharide (LPS) levels, Hyaluronic Acid (HA) and Cytokeratin–18 neoepitope (CK–18) levels in HCV and HIV monoinfected treatment naïve patients, as well as possible relation to FIB–4 score.

Methods

Case control study included 44 patient histories. All patient plasma samples were measured for LPS, HA and CK–18 levels. Demographic data, levels of ALT, AST, platelet count and FIB–4 score were analysed. Patients with known comorbidities were excluded from the study. Differences between groups were assessed by using Mann–Whitney U test. Correlation was assessed by using Spearman correlation test.

Results

The study group consisted of 22 (50%) HCV and 22 (50%) HIV monoifected patients. Statistically significant differences were found in CK–18 (p= 0,004) and HA (p=0,001) levels. CK–18 levels were higher in HCV patients Me= 377,50 U/L (IQR= 177,00–526,98), vs HIV group Me= 155,50 U/L (IQR= 135,80–211,20). Median HA levels were higher in HCV group: Me= 78,28 ng/ml (IQR= 49,72–198,19) vs HIV group Me= 16,73 ng/ml (IQR= 12,24–27,16). LPS levels were higher in HIV group, however they did not differ significantly between groups. Associations of FIB–4 score were found in HCV group only (to CK–18 (rs = 0,680, p= 0,001), HA (rs= 0,754, p= 0,001), and to LPS level (rs = -0,519, p= 0,013)), whereas no correlations for FIB–4 score were found in HIV group.

Conclusions

Liver damage is more pronounced in HCV patients which is shown by higher CK–18 and HA levels but is not supported by higher impairment of gut epithelial integrity compared to HIV patients, where microbial translocation can play bigger role in disease progression.

TRENDS IN INFLAMMATORY BOWEL DISEASE (IBD) EPIDEMIOLOGY FOR 2012–2018 IN LATVIA

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Introduction

There is no registry in Latvia that provides epidemiological data on IBD and provides information on patient-related outcomes as well as health resource utilisation. Latvian National Health Services (NHS) is maintaining a database of all reimbursed medicines and manipulations that allow indirect assessment of IBD epidemiological situation in Latvia.

Study Aims

To investigate epidemiological characteristics of Latvian patients with inflammatory bowel diseases – Crohns disease (K50) and Ulcerative colitis (K51) for the period of 2012 – 2018.

Methods

Systematic retrospective data review from Latvian NHS reimbursed medicines database.

Results

For the period of 7 years 4828 including pediatric patients were treated with medications for K50 and K51 indications. For diagnosis K50 – 530 were female (mean age 54.78 ± 18.39 years) and 385 were male (mean age 45.27 ±18.11 years). For diagnosis K51 – 2208 were female (56.95 ± 18.12 years) and 1584 were male (48.83 ± 17.80 years). The mean frequency of hospitalizations per year for K50 was 150.86±17.5 with mean length of stay 7.27±0.50. Mean frequency of hospitalizations per year for K51 was 254.71±18.15 with mean length of stay 7.91±0.39. In total 66 and 26 intestinal resections were performed for K50 and K51 respectively. For K50 – 29 and for K51 -19 stomal surgeries were registered. 9 repeated or reconstructive abdominal surgery including fistula surgery were performed. 433 and 681 abdominal ultrasounds were carried out for K50 and K51. 845 and 3155 colonoscopies and sigmoidoscopies for K50 and K51. 370 and 550 gastroscopies, partial duodenoscopies, capsule endoscopies for K50 and K51.

Conclusions

This is the first study describing epidemiological characteristics of IBD population in Latvia, with male patients receiving first prescription for IBD at earlier age than female patients, and much less frequently treated with medications in both K50 and K51. The data limitation concerns patients that are treated in the private sectors thus not reflected in the NHS data.

POOR RECOGNITION OF FATTY LIVER DISEASE IN EARLY PERIOD OF TYPE 2 DIABETES IN PRIMARY CARE

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Introduction

Recently tripartite algorithm was described to help primary care (PC) doctors to identify patients with fatty liver disease (FLD) using liver enzymes and abdominal ultrasound (US) and assess the presence of advanced liver fibrosis using clinical prediction rules.

Study Aims

The aim of the study was to evaluate the recognition of FLD in the early period (0-3 years) of type 2 diabete (T2D) in PC.

Methods

A retrospective analysis of medical history data of random 100 T2D PC patients was performed, and 41 early diabetes patients' data were eligible for analysis. Data on liver US, three liver enzymes - alanine amino transferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP), (3A), tests, total cholesterol (TCh) and glycated haemoglobin (HbA1c) evaluation rates, also performing body mass index (BMI) calculation were registered. Descriptive statistics was applied.

Results

Three parameters - US, 3A and BMI were evaluated only in 6 patients (14.6%): five had BMI > 25kg/m^2, one had all 3A values elevated, 2 patients had US confirmed FLD. US performed only in 13 (31.7%) patients and they were divided into 2 groups: 1st - confirmed hepatosteatosis by US (N=7 (53.8%)) and 2nd- no hepatosteatosis by US (N=6 (46.2%)). BMI was calculated in 4 patients in 1st US group (3 patients had BMI >25kg/m2), AST, ALT were evaluated in 6 patients (1 had both enzymes' values increased), TCh was evaluated in 6 patients (4 had TCh value increased), and HbA1c was evaluated in 7 patients (3 patients had HbA1c > 7%). The 2nd group data showed that BMI was calculated in 5 patients (4 patients had BMI>25kg/m2), AST, ALT tests were evaluated in 5 patients (1 had both enzymes' values increased), TCh was evaluated in 6 patients (5 patients had TCh value increased), and HbA1c was evaluated in 6 patients (2 patients had HbA1c > 7%).

Conclusions

Recognition of FLD in early T2D patients is poor, however, half of those with US examination had confirmed hepatosteatosis in PC. The study suggests that FLD recognition may be significantly higher, if targeted tactics is applied.

LIVER ABSCESSES – 7-YEAR EXPERIENCE OF A SINGLE MULTIPROFILE HOSPITAL

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Introduction

Although liver abscess (LA) is a well-described disease in the medical literature information about its characteristics in Latvia is scarce.

Study Aims

To evaluate aetiological, clinical patterns and instrumental findings of LA, as well as treatment modalities used.

Methods

Medical records of LA cases registered in Rīga East University Hospital clinical centre "Gaiļezers" from January 2012 to October 2018 were retrospectively reviewed. Statistical data was processed by IBM SPSS Statistics v23.

Results

Out of total 95, including 5 recurrent, cases 52.6% (N=50) were men and 47.4% (N=45) were women, mean age=64.5±15.9, range 27–95 years. The most common documented risk factors for LA were underlying biliary tract abnormalities (37.9%, N=36), and diabetes mellitus (12.7%, N=12), while in 21.1% (N=20) LA were cryptogenic. The majority of patients presented with fever (70.5%, N=67); right upper abdominal pain was reported in 61.1% (N=58), while vomiting and/or nausea in 25.3% (N=24). Infectious agents were isolated from LA in 65.3% (N=62). Most common isolates identified were K.pneumoniae, 40.3% (N=25), mainly in monomicrobial LA, and E.coli, 22.6% (N=14), predominantly in polymicrobial LA ($\chi 2(1, N=39)=5.61$, $p=0.018$). Multidrug resistant strains were isolated in 9 cases, specifically, extended spectrum β-lactamases producing K.pneumoniae and/or E.coli in 4 cases, AmpC producing Citrobacter sp. in 2 cases and Enterococcus sp. in 3 cases. Ceftriaxone and metronidazole intravenous formulations were used in 35.5% (N=33) as the principal antimicrobial combination at hospital. Median overall expected duration of antimicrobial treatment was 15 days (IQR, 11–23). LA drainage was performed in 87.4% (N=83) for the median duration of 7 days (IQR, 6–10.75). In 86.3% (N=82) approaches were combined.

Conclusions

Our study indicates peak LA incidence in patients' seventh decade. K.pneumoniae and E.coli were the most common isolates, accounting for more than half of all microbiologically confirmed cases. Once recognized, broad-spectrum antimicrobials and drainage are the mainstay of management for LA, although according to current recommendations antimicrobial treatment duration was often insufficient.

IRON ABSORPTION DISTURBANCES IN PATIENTS WITH ENTEROPATHY: INTERIM ANALYSIS OF SINGLE CENTRE STUDY

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Introduction

There is about 2 billion people in the world who suffer from anemia, mostly iron deficiency anaemia (IDA), by WHO data. Iron deficiency without anaemia is three times more common than IDA. In such patients, the condition of the small intestine should be evaluated, and malabsorption excluded.

Study aim

The aim of the study was to evaluate potential correlation between different types of enteropathy and iron absorption disturbances.

Methods

The study was performed at the Latvian Maritime Medical Center "Gastroklinika" from year 2014 to 2018. Iron absorption test with 50mg of oral iron gluconate was performed for each patient. Patients had filled FACIT questionnaire and had to undergo video capsule endoscopy (VCE).

Results

A total of 48 patients were enrolled for analysis – 41 (85.4%) female and 7 (14.6%) male. Enteropathy was diagnosed in 35 cases: erosive - 17, erythematous - 12 and congestive - 6. By the time of VCE 24 patients were suffering from anemia. As hole 33 (68.7%) patients had problems with iron absorption whom 8 had no sign of enteropathy and 25 were diagnosed with any kind of enteropathy during VCE.

Conclusions

IDA had a slight correlation with enteropathy, that could be explained by small intestine malabsorption.

2L OF POLYETHYLENE GLYCOL AS A SMALL BOWEL CLEANSING REGIMEN PRIOR TO VIDEO CAPSULE ENDOSCOPY: INTERIM ANALYSIS.

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Introduction

Capsule Enteroscopy (CE) is a fundamentally new method in diagnostic endoscopy. However, there are several factors influencing the quality of this procedure, including impermeable fluids, food remains etc.

Study aim

Aim of the study was to assess one of the most popular currently used bowel preparation methods and evaluate possible influence of different factors.

Methods

136 CE examinations were analysed. Each patient was prepared using 2 litres of *Polyethylene glycol* (PEG) one day prior to examination. There was a special form filled in for each patient including different parameters (anamnesis, CE data etc.).

Results

Out of 136 CE cases, 84 (61.8%) were female patients and 52 (38.2%) male. The small bowel (SB) transit time in 112 patients varied from 39 to 502 minutes, but in 24 cases capsule did not reach caecum. The degree of bowel cleanliness was as follows: very good – 30 (22.1%) patients, satisfactory – 97 (71.3%), poor – 9 (6.6%). The positive correlation was observed between the degree of SB cleanliness and the SB transit time (p =0.015=0.015). Respectively, the longer was the SB transits time the worse was the degree of SB cleanliness.

Conclusions

The results obtained in this study prove that the quality of the SB cleanliness is influenced by SB transit time. Relatively large percentage of satisfactory bowel cleanliness and comparatively small percentage of bowel cleanliness rated as "very good" when 2 litres of PEG are used prior to CE, point out to the outstanding issues in preparation of the bowel prior to CE.