Sequential (PPI + amoxi 1 g for 5 days then PPI + clarithro 0.5 g + tinidazole 0.5 g for 5 days, N = 294); 65% Triple (PPI + clarithro 0.5 g + amoxi 1 g for 7 days, N = 121), 57% Levo (PPI + amoxi 1 g + levofloxacin 0.25 g for 10 days, N = 24), 100% Concomitant (PPI + clarithro 0.5 g + amoxi 1 g for 14 days, N = 2) and 73% Undefined (likely Triple: patients missing documentation, N = 470). In general practice, Triple and “Undefined” were the most popular regimens as 1st (96%) to 5th line treatments. Referral center used 1st line Sequential/Concomitant and 2nd line Levo until 2016 and then 1st/2nd line Concomitant & It; Pylora®.

Conclusions: In geographical regions with high clarithromycin resistance, the use of triple/sequential/undefined eradication regimens for HP infection does not follow current guidelines. This approach causes ineffective, harmful antibiotic (over-)prescription and potential intestinal dysbiosis. A better training program is necessary to avoid unnecessary over-misuse of antibiotics for HP eradication, especially in General Practice.

P081-F | Peculiarities in nutrition of the adult population of the city of Kazan

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Background: At present, significant changes in the structure and quality of nutrition of the population living in the territory of the Russian Federation take place. Incompetence in food culture and unhealthy eating becomes a serious risk factor for many diseases.

Material and methods: A survey questionnaire of the population of the city of Kazan (256 persons) aged from 18 years and older; analysis of the morbidity was carried out based on the annual reports (form No. 12) from the medical institutions of Kazan (2005–2016).

Results: The study of nutrition showed that 55% took meals irregularly and monotonously. Every 6th–7th respondent took meals once a day. The frequency of taking meat products 1–2 times a week among the surveyed made 27.6%. The population preferred fish and sea products once (58.5%) or two-three (27.2%) times a week. 29% of the surveyed population included cereals into the menu 2–3 times a week, and 27.7% – once a week. Our study revealed that 2.1% of the population never ate vegetables and fruit, 14.3% – once and 27.3% 2–3 times a week.

Conclusions: Analysis of the morbidity showed that the highest growth rates of the primary disease incidence among the adult population compared with the year of 2005 was determined in the class of K00-K02 – 36% (1st place), G00-G98 – 7.3% (2nd place), I00-I99 – 3.2% (3rd place). The primary incidence of digestive diseases increased significantly for 10 years (R² = 0.6943). Thus, imbalanced nutrition has a considerable effect on the incidence level of digestive diseases.

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P082-F | Antibiotic resistance of dairy and probiotic lactobacilli and its transfer to pathogenic bacteria

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Background: Lactobacilli are common in foods and are members of the resident gastrointestinal microbiota of humans. These bacteria may function as hosts of antibiotic resistance genes, which can be transferred to pathogenic bacteria. The aim was to characterize antibiotic resistance of Lactobacillus spp. and to estimate the potential transfer of resistance genes from lactobacilli to opportunistic pathogens that share the same intestinal habitat.

Methods: Nineteen Lactobacillus strains were isolated from probiotics and dairy products and identified by MALDI Biotyper. They were screened for phenotypic resistances to 14 antibiotics by the disk diffusion method. The erythromycin (Erm) and tetracycline (Tet) resistance genes were amplified by PCR and sequenced (Sanger method). The tet(K) gene from plasmid DNA of L. fermentum strain 5–1 was transferred by electroporation to sensitive bacteria Citrobacter freundii, which became resistant to Tet, as proved by growth on agar with Tet and PCR amplification of tet(K) gene.

Results: L. plantarum and L. fermentum isolates showed the resistance profile characteristic for lactobacilli. They possessed intrinsic resistance to ciprofloxacin (84.2% of strains) and vancomycin (68.4% of strains), while showing susceptibility to protein synthesis inhibitors, except aminoglycosides. Most strains were susceptible to beta-lactam antibiotics and rifampicin.

The Erm resistance gene erm(B) was detected in chromosomal DNA of L. fermentum 5–1, corresponding to its resistance phenotype. These strain sensitive to Tet was positive for silent genes tet(K) and tet(M) in plasmid DNA. Moreover, tet(K) gene of L. fermentum 5–1 was successfully transferred by electroporation to sensitive bacteria Citrobacter freundii, which became resistant to Tet.

P087-F | E. coli O157:H7 epidemiology and outcome in Iceland

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Background: E. coli O157:H7 is a cause of disease and death worldwide. In Iceland, E. coli has been present since 1999 and up to 2001 there were sporadic cases from infected calves and sporadic cases of human infection. The aim of this study is to describe the incidence, outcomes and risk factors of infection with E. coli O157:H7 in Iceland.

Methods: All patients with E. coli O157:H7 infections in Iceland from 2001 to 2016 were included. The incidence was calculated as incidence rate per 100,000 inhabitants. The main outcome of interest was hospitalization. The risk factors were evaluated by univariate and multivariate analysis.

Results: There were 112 cases of E. coli O157:H7 infection in Iceland from 2001 to 2016, corresponding to an incidence rate of 0.9 per 100,000 inhabitants. The majority of cases were in children under 5 years of age (80%). The most common symptom was diarrhea (93%). The hospitalization rate was 36%, and 7% of patients required intensive care. The risk factors for hospitalization were age, previous episodes of E. coli O157:H7 infection, and concurrent illness.

Conclusions: E. coli O157:H7 infection is a significant public health problem in Iceland. The incidence rate is low, but the disease is associated with severe outcomes, particularly in children. Future studies should focus on identifying risk factors and developing interventions to prevent E. coli O157:H7 infections.
Conclusions: This study presents a cause for concern because dairy Lactobacillus strain has been demonstrated to serve as reservoir organism for acquired resistance genes that can be spread to pathogenic bacteria. This work was supported by Program of Competitive Growth of KFU and RFBR grant No 17-00-00456 and 18-34-00268.

P083-F  |  Effects of the lactobacilli supplementation on the anxious-phobic state of mice with altered microbiota

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Intestinal microbiota is a bacteria community that helps to maintain a dynamic metabolic balance in the body. The microflora can affect the physiological, behavioral and cognitive functions of the brain. This two-way communication system forms the axis “microbiota-intestine-brain.” Therefore, changes in the intestinal microbiota can affect the functions of the digestive system and the CNS. Changes in microflora in cases of infection, disease and a wrong diet can lead to a dysbacteriosis that causes anxiety and stress. The purpose of this study was to compare the anxious-phobic state of mice in control and with altered microbiota. Experiments were performed on mice aged 20–25 days. Animals were divided into 3 groups: (i) a control group receiving i.p. injections of saline (n = 10); (ii) mice receiving i.p. injections of antibiotics (a cocktail of neomycin, vancomycin, amphotericin B, ampicillin, metronidazole, AB, n = 10); (iii) mice receiving injections of antibiotics together with supplementation of lactobacilli to their water (4 × 10^8 cells/mL, AB + LB, n = 10). To assess the anxiety state an Open Field, the Black/White Camera test and an integral anxiety index (IAI) were used.

In the control animals no changes were observed in all tests. IAI was slightly decreased reflected the gradual adaptation of animals. AB group demonstrated the rise of emotionality: an increase in the number of acts of grooming and defecation, a decreased time of leaving from the center compared with the control and AB + LB groups. The animals of AB group demonstrated the reduced time spent in the light chamber and an increase of IAI, whereas in AB+LB group the time spent in the light chamber and IAI didn’t change.

Thus, the disturbance of normal microflora leads to the anxious-phobic state in mice. Simultaneous supplementation of lactobacilli prevented the observed changes, which indicate a positive effect of normal microflora on stress resistance.

P084-F  |  The effects of short-chain fatty acids on the motility of the mouse colon

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Short chain fatty acids (SCFAs), such as acetate, propionate, and butyrate are key products of fermentation of indigestible carbohydrates by commensal bacteria that reside in the gastrointestinal tract. SCFAs used as a nutrient source by colonic epithelial cells and induced apoptosis in colon cancer cell lines. The colonic SCFAs content may change in patients with irritable bowel syndrome and inflammatory bowel diseases compared with healthy controls. It has been shown that, besides their effect on gut morphology and function, SCFAs have excitatory or inhibitory effects on gastrointestinal motility. However, the mechanisms of SCFAs action on colonic motility are not completely elucidated. In this study, we investigated SCFAs effects on spontaneous and carbanchol-induced contractions in mouse colon.

We recorded the contraction of mouse colon segments of 5 mm length under isometric conditions. During the experiment, the organ bath was filled with 37°C Krebs solution continuously bubbled with carbogen. Carbachol was used in concentration 1 μM.

After a stable baseline was attained acetate, propionate or butyrate in concentration range from 0.5 to 10 mM were added cumulatively to the bath. All SCFAs induced dose-dependent decrease of the contraction frequency. Acetate and propionate decreased tonic tension without effect on the amplitude of phasic contraction; butyrate decreased the amplitude of the phasic contraction without effect on the tonic tension. Preliminary application of SCFAs at concentration 10 mM decreased the amplitude of carbachol induced increase of the tonic tension.

In summary, this study shows that short chain fatty acids induced dose-dependent inhibitory effects on spontaneous and carbachol induced contraction of the colon. It was concluded that SCFAs may impact in alteration of colonic motility during inflammatory bowel disease and irritable bowel syndrome. Work supported by Program of Competitive Growth of KFU.