

The phenomenon of antibiotic resistance has been actively studied since its discovery by Louis Pasteur in the second half of the 19th century to the present day. The main reason for the appearance of immunity to any kind of antibiotics in bacterial cells are mutations, which are then transmitted to other bacteria by means of conjugation, transformation or division [1]. In this case, the most resistant are microorganisms that are part of biofilms. Bacteria in the biofilm actively exchange signals from stimuli, energy and genetic information [2].

Bacteria in biofilms have increased survival in the presence of aggressive substances, immune defense factors and antibiotics. Bacteria and fungi in biofilms survive in the presence of antibiotics, in particular, biofilms were able to withstand concentrations of antibiotics in 100–1000 times more therapeutic dosages suppressing single bacterial cells [3]. Because free bacterial cells are less protected than biofilms, an antibiotic that is highly active in vitro when tested in a clean culture may not be effective in in vivo trials (where the phenotype of biofilms predominates). In this regard, one of the main problems of practical medicine is the problem of treatment of diseases of microbial origin, in cases where the sensitivity to antibiotics of microorganisms associated with biofilm does not correspond to that defined in laboratory tests on clinical isolates of pure cultures of bacteria. In this regard, in recent years there is an active study of the action of antibiotics on the biofilms of bacteria that cause pathological processes of different localization [4].

The wide availability of antibiotic, the wrong choice of antibiotic, its dosage regimen or duration of treatment, and other mistakes lead to the formation and spread of antibiotic-resistant strains of microorganisms, which today is a global problem for all countries of the world [5].

One of the ways to combat antibiotic resistance is to find alternative ways to disrupt the bacterial structure, such as the use of peptide molecules [6].

The main WHO strategy in response to expanding the range of antibiotic-resistant bacteria is to produce new, more effective antibiotics [7].

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CONGENITAL MALFORMATIONS OF THE DIGESTIVE SYSTEM

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The analysis of data on morbidity of children with congenital malformations (CDF) of the digestive system in the Republic of Belarus for the period of 2015–2016 was, on average, was 58 cases with a frequency of 4.06 ‰. It was found that the most common pathology is atresia of the anus (32.7%) and atresia of the esophagus (22.4%). The population frequency was 0.49 cases and 0.33 cases per 10,000 newborns, respectively. The effectiveness of prenatal diagnosis for the same period was on average 56%.

Keywords: congenital malformations, digestive system, newborns, atresia.

Congenital malformations are one of the main causes of perinatal and early child mortality, causing serious medical and social problems in society according to the World health organization (WHO), malformations belong

to the group of eco-associated diseases, which are indicators of the state of the environment. Congenital defects occur in 5% of newborns, but their contribution to the structure of child mortality reaches 20%. Many countries around the world have established specialized registers to study the frequency and dynamics of congenital malformations.

The Belarusian register of HPV is a monitoring system for monitoring the population frequency and dynamics of birth defects. The uniqueness of the Belarusian register is due to the wide coverage of the analyzed areas and the number of analyzed births. Processing of information on cases of birth defects in the Republic of Belarus is carried out on a regional basis in accordance with the order of the Ministry of health of the Republic of Belarus, "Order of improvement of records of congenital defects (malformations) in children (fetus)" (No.1172 from 01.11.2010). according to which all cases of birth defects registered in children under the age of one year, stillbirths, children who died before the age of one year, and in aborted fetuses for genetic indications are subject to registration.

In the structure of congenital malformations anomalies of the digestive system occupy the third place and account for 21.7–25.0% of all defects. In Europe, congenital malformations of the digestive system occur at a frequency of 4.2–6.4 per 10,000 live births. In the Republic of Belarus, the frequency of occurrence is 1.5 per 10,000 live births.

The aim of this study was to assess the population frequencies of the digestive system in the period 2015–2016 in the Republic of Belarus on the basis of the data of the Belarusian register.

The studies were conducted on the basis of public institution "RNPC "Mother and child". 1024 analysed cases, the CDF of the digestive system in children during the period 2015–2016, the study found that isolated forms of vices was 24 (41,3%) cases, systemic diseases – 10 (17,2%) cases. Malformations of the digestive system composed of multiple congenital malformations (MITR) – 27 (46,5%) of the cases.

In most cases (56%), the diagnosis of the digestive system CVD can be established prenatally on the basis of ultrasound examination followed by the use of invasive diagnostic methods. Each year, this figure averaged 58.25 cases, the population frequency of which averaged 4.06 ‰.

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DETERMINATION OF POLYMORPHISM OF K-RAS AND DPC4 GENES IN PANCREATIC CANCER IN THE BACKGROUND OF DIABETES MELLITUS

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Molecular genetic studies found that 86% of patients with pancreatic cancer and diabetes mellitus had a mutant K-ras gene in the first and second bases of the 12 exon 1 codon and no polymorphisms in the 11 exon of the DPC4 gene (Smad4).

Keywords: pancreatic cancer, diabetes mellitus, proto-oncogene K-ras, Smad4 gene (DPC4).

The deteriorating ecological situation leads to a steady increase in the diseases of the endocrine system and malignant neoplasms.

The risk of malignant diseases in patients with diabetes is 2 times higher with a disease duration of less than 5 years. At present, according to individual researchers, there is an increased risk of developing pancreatic cancer from 5 to 40% with long-standing diabetes mellitus [1, 2].