C677T mutation, XRCC1 gene (Arg194Trp), HOGG1 with TT genotype, xeroderma pigmentosum (XPF) (rs744154) increase susceptibility. Tumor suppressor genes: p53 (Arg / Arg), p53CD72 associated with genetic susceptibility to gastric cancer is an important biomarker. *H. pylori* infection and p53 mutation have been shown to have a synergistic effect. NM23 is the first confirmed suppressor gene for tumor metastases.

**Conclusions.** The study is based on the analysis of genetic variants that confer a higher risk of CG and their interactions with environmental factors, respectively *H. pylori* infection. Candidate gene polymorphisms in gastric cancer susceptibility. A deeper understanding of the factors involved in the development and progression of CG may allow the identification of persons at risk and can provide useful predictive information for the subgroups of patients who need early treatment or surveillance strategies.

**Key words:** Gastric cancer, genetic predisposition.

## 322. THE GENETIC PARTICULARITIES IN PAPILLARY THYROID CANCER

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**Introduction.** Papillary Thyroid Cancer (PTC) is taking the 1st place in malign processes of endocrine system, being also the most studied problem in cases of thyroid gland cancer. PTC is taking 40-85% from the total of the thyroid cancer in the past few decades. This is because of the human activity in the past- pollution of the environment, the rise of the radioactivity in the water, air and ground, registered a sudden rise in morbidity in EU and USA. We would like to mention the genetic factor in etiology of PTC. It has been recently shown that these tumors commonly have one of three genetic alterations: BRAF point mutations, RET/PTC rearrangements, or RAS point mutations. This factor has to have a substantial role in precocious diagnosis of the cancer and prognosis after the chirurgical treatment.

**Aim of the study.** To elucidate the role of the genetic modifications in pathogenesis and cancerogenesis of the disease

**Materials and methods.** We performed a retrospective study on a group of 50 patients with thyroid cancer, who were investigated: clinical, ultrasound, histological and laboratory (thyroid hormone level) and treated in the oncological "Head and neck" department of the Institute of Oncology between December 15- May 30, 2019 . The study included primarily diagnosed cases with CPT after surgical intervention. Data on the main risk factors, demography and tumor location have been collected from medical records. We will classify the patients after age, sex, cancer stage, evolution rate, data about the family anamnesis: the presence if the thyroid nodular disease and the presence of another neoplastic processes in relatives.

**Results.** 83% of patients were diagnosed with CPT, 80% are female, middle age of involvement of 51-60 years old (38%). We observe hypoplasia of the thyroid gland on 6 patients (12%); hyperplasia of grade l-ll on 27 patients (54%); hyperplasia of grade lll-lV on 16 patients (33%). According to hormonal levels, euthyroidism, had 18 patients (37%); hypothyroidism 10 patients (21%); hypothyroidism 21 patients (42%). CPT patients were diagnosed in pTNM following stages: st.l T1N0M0, 7 patients (15%); st.ll T2N0M0, 22 patients (45%); st.lll T3N1M0, 15 patients (30%); st.lV T4N1M1, 5 patients (10%). From the studied group, 19 patients have relatives with nodular pathology of the thyroid gland (37%).

50% of the patients have an aggravated hereditary anamnesis. We studied the genealogical trees of the patients; we found out that: in 25 families of 2 and more relatives (gr.l and ll) with cancer (thyroid, colorectal, breast, ovarian, malignant melanoma cancer) and thyroid nodular pathology.

**Conclusions.** From the point of view of molecular and genetic side, PTC is heterogeneously and it needs new approaches of genetic modifications in clinical practices. The proportion of patients with cancer is increasing with age, aggravated hereditary and personal anamnesis. It is necessary to introduce screening by genetic exam for high-risk patients.

**Key words:** Papillary Thyroid cancer (PTC), genetic modifications, genetic testing, screening, mutations

## DEPARTMENT OF MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY

### 323. CYANOBACTERIA PIGMENTS: POTENTIAL ALTERNATIVES AGAINST ANTIBIOTIC-RESISTANT BACTERIA

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**Introduction.** The increasing number of multidrug-resistant bacteria in the last decade has left clinicians with very few medication options, usually resulting in the use of more expensive treatments. The demand of new therapeutic approaches encourages the discovery of new natural products with possible antimicrobial activity.

**Aim of the study.** Therefore, the aim of this study was to look for active substances that could be used as antibacterial agents. To achieve this objective, two different fractions (myxoxantophyll and phycocyanin) from *Spirulina platensis* were investigated. Myxoxanthophyll is a carotenoid glycoside yellowish pigment present in the photosynthetic apparatus of *Arthrospira (Spirulina) platensis* and phycocyanin is a protein complex, accessory pigment to chlorophyll also present in *Spirulina platensis*.

**Materials and methods.** The cyanobacteria extracts were tested *in vitro* for their antibacterial proprieties against (*Acinetobacter baumannii*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, *Staphylococcus aureus* and coagulase-negative staphylococci) using macro dilution method Ericsson and Sheris. The Time-kill kinetics assay (CLSI M26) was used to study the bactericidal activity of the *Spirulina platensis* extracts against bacterial strains over the time.

**Results.** By means of the broth macro dilution assay, it was found that microalga extracts possess pronounced antibacterial activity against *Acinetobacter baumannii* (MIC: 0,0275 mg/ml for myxoxanthophyll and 0,18 mg/ml for phycocyanin). In the case of coagulase-negative staphylococci the antimicrobial activity of *Arthrospira platensis* fractions was low. Gram-negative bacteria showed to be more sensitive to the action *Spirulina platensis* pigments than Gram-positive bacteria. Also, it was found that myxoxanthophyll possess bacteriostatic and bactericidal action at a lower concentration than the phycocyanin. At a concentration of 0,04 mg/ml myxoxantophyll could kill 100% bacteria in approximately 4 hours, and the time-kill for phycocyanin was about 8 hours at the concentration 0,72 mg/ml.