Increased Biochemical and Enzymatic Activity of Multidrug resistant *Staphylococcus aureus* in Colorectal Cancer Patients

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Introduction. Colorectal cancer represents an important disease as one of the major causes of death worldwide. Besides of many factors (diet, family history, age, ethnicity, others), metabolic products of intestinal microflora also influence and predispose to the development of colorectal cancer. Colonization of the gastrointestinal system by *Staphylococcus aureus* strains in hospitalized patients may lead to important clinical complications and is able to acquire resistance to a variety of antibiotics.

Aim. The aim of study was identification and comparison of pathogenic activity of multidrug resisnt *S. aureus* (MDRSA) strains isolated from colorectal cancer patients and non-cancer patients with intestinal dysbiosis to determine changes of biochemical properties and enzymatic activity of MDRSA in different types of diseases.

Materials & Methods. There were studied 64 MDRSA strains. Sample materials – feaces - were taken from patients with colorectal cancer (36 strains – I group) and from patients with intestinal dysbiosis (28 strains – control, II group). Samples were collected before surgical involvements and\or administration of therapeutic regimes.

Results & Discussion. **Results & Discussion.** MDRSA strains were discharged in both groups (table 1). Also there were studied and compared pathogenic factors of MDRSA and non-MDRSA strains (table N2). All strains were coagulase- and catalase-positive. Carbohydrate fermentation in anaerobic condition was higher in I group (86.11±5.76% vs. 75.00±8.18%). Hemolytic activity in all MDRSA strains in comparison of non-MDRSA strains (100 vs. 75.00±8.18%). Mannitol fermentation in anaerobic condition was much higher in I group – 86.11±5.76% than in II group - 60.71±9..23%.

Conclusion. Study revealed that MDRSA strains are widespread in patients with colorectal cancer. Additionally MDRSA strains in cancer patients revealed higher pathogenic activity than MDRSA strains in patients with dysbiosis. Based on above the results of the research may determine specificity of colorectal cancer and can be considered in prognosis of this disease.

S. aureus	I group (n=36)		II group (n=28)	
	Abs.	%	Abs.	%
MDRSA	24	66.66±7.86	8	28.57±8.53
Non-MDRSA	12	33.33±7.85	20	71.42±8.53

Identity markers of MDRSA	I group n = 36		II group n = 28	
	abs	%	abs	%
Coagulase-positive	36	100	28	100
Catalase-positive	36	100	28	100
Urease -positive	30	83.33± 6.26	14	50.00 ±9.44
Hemolytic activity	36	100	21	75.00 ±8.18
Lecithinase activity	33	91.66± 4.52	21	75.00 ±8.18
Proteolytic activity (production of H_2S)	33	91.66± 4.52	19	67.85± 8.81
Mannitol fermentation	31	86.11± 5.76	17	60.71± 9.23
Carbohydrate fermentation	31	86.11± 5.76	21	75.00 ±8.18