Opportunities of hardware-software complex "Sensitiv Imago" application for revealing of disordered microbiocenosis

Dysbacteriosis – it is a syndrome described by the mobile imbalanced microflora, in norm occupying the intestines. While in the distal parts of small intestine and in the thick gut of healthy persons lactobacteria, anaerobic streptococci, colon bacillus, enterococci and other microorganisms are predominating, in case of dysbacteriosis the balance between these microorganisms is broken. Commonly in this condition the putrefactive or fermentative flora, mushrooms, mainly such as Candida, are plentifully developing; in the intestines can be found microorganisms, which are not characteristic for it in the norm condition; lots of microbes there are in the contents of proximal parts of small intestine and in the stomach. The conditional-pathogenic microorganisms which commonly can be found in contents of intestines in small amounts, are actively developing, too; instead of not pathogenic strains of colon bacillus (escherichia coli) its more pathogenic strains can be quite often found. Thus, in case of dysbacteriosis some qualitative and quantitative changes of microbe associations' structure in the gastrointestinal tract can be observed. The resistibility of mucous tunic of bowels to toxic metabolism products is decreasing, the broken permeability, as result of affected mucous tunic of bowels, leads to autointoxication [1].

The normal balance of intestinal microflora is of a great importance for digestion processes and for the organism as a whole:
1. Colon bacilli, enterococcis, bifidobacteria and lactobacillus acidophilus in the conditions of normally functioning bowels can suppress the growth of harmful microorganisms.
2. The internal surface of bowels is reliably protected from penetration of foreign proteins, microbes and viruses. The important role in the organization of this protection plays the immune system of organism. The intestinal microflora stimulates the immune protection.
3. The splitting of not digested food substances in the thick gut is carried out bythe enzymes of bacteria, thus various connections can be formed. The toxicproducts of microbe metabolism (cadaverine, histamine and others amines) arededuced with urine and normally they do not render any influence on theorganism. When the microbes are utilizing the indigestible carbohydrates(cellulose), the short-chained fat acids are formed. They provide the cells ofthe gut with energy and, hence, improve the feeding of the mucous membrane.If the cellulose is in short supply, the permeability of the intestinal barrier canbe broken because of the short-chained fat acids deficiency. In result the intestinal microbes can penetrate into the blood.
4. Under the influence of microbe enzymes in the ileum the primary bilious acids are transformed into secondary ones. In physiological conditions, 80 to 95 % of bilious acids are being soaked up back, the others parts are discharged with excrements as bacterial metabolites. The last ones promote a normal formation

of fecal output: they brake the absorption of water and obstacle in this way the occurrence of constipations.

As information here are listed intestinal microflora norm indices:

Normal microflora.
• Colon bacillus - 10^6 - 10^7
• Spore-anaerobe - 10^3 - 10^5
• Lactobacilli - 10^6 and more
• Bifidobacteria - 10^7 and more

Pathogenic and conditional-pathogenic microflora

• Staphylococcus – up to 10^3
• Enterococcus – up to 10^3
• Streptococcus – up to 10^3
• Candida albicans –up to 10^3
• Proteus mirabilis - 10^2 - 10^3
• Proteus vulgaris - 10^2 - 10^3
• Pathogenic microbes of intestinal family, Salmonella, Shigella, Yersinia - 0
• Colon bacillus with feebly marked fermentative properties –up to 10%
• Hemolyzed colon bacillus - 0
• Lactose-negative enterobacteria, cloacae - 10^3
• Conditionally-pathogenic gram-negative microorganisms - 10^2 - 10^3
• Klebsiella pneumoniae, enterobacter aerogenes, oxytoca, agglomerans - до 10^3
• Listeria monocytogenes, providencia rettgeri, alcalifaciens, stuartii - до 10^2
• Aeromonas, pasteurella, citrobacter freundii, diversus, hafnia alvei - до 10^2

The reasons of dysbacteriosis development can be first of all antibiotic therapy and taking of other eubiose breaking medicines, irrational feeding, an untimely treatment of digestion organs diseases, adverse ecological conditions and other numerous factors of external and internal environment influences causing disorders of microbiocenosis.

Clinically the dysbacteriosis can give evidence of itself with an unstable stool, more often with propensity to constipations, with dyspepsia phenomena, with various appearances of skin rash. The dysbacteriosis frequently is one of the reasons of chronic weariness syndrome. In consequence of protracted and not treated disorder of intestinal microflora balance the syndrome of malabsorption can occur.

The diagnostics of intestinal dysbacteriosis is connected with following difficulties: the microbe structure of excrements to be analyzed at specialized bacteriological laboratories, is extremely changeable, and it doesn't reflect the multiform picture of intestinal microbiocenosis and does not give any opportunity to receive operative information about the structure of microorganisms in the bowel. When diagnosing *dysbacteriose in the praxis, one has to be content with* data only

about 15-20 kinds of microbes contained in feces. One usually investigates the amounts of bifidobacteria, lactobacilli, colon bacilli, proteus, enterococcus, golden staphylococcus, blue pus bacillus and candida. The degree of severity of dysbacteriosis can be defined by decreasing of bifidobacteria and of other obligate microorganisms and by increasing the amount of conditional - pathogenic kinds [1,2].

On the basis of ours gastroenterology we have examined a group of patients (57 person) who addressed us because of unstable stool, of the increased meteorism and who has had antibiotica-therapy during the last half-year. The patients were examined with the hardware-software complex **"Sensitiv Imago"** [3], the control analyses of feces were carried out in regional bacteriological laboratory. In the table are shown the results of bioresonant test and of bacteriological analyses to detect pathogenic and conditionally pathogenic microflora.

MICROORGANISMS	BIORESONANT TESTING	BACTERIOLOGICAL ANALYSIS
ENTEROCOCCUM FAECIUM	38	43
PROTEUS VULGARIS	24	11
LAMBLIA INTESTINALIS	25	18
STREPTOCOCCUS AGALACTIA	49	51
ESCHERICHIA COLI	51	53
STAPHILOCOCCUS AUREUS	55	51
SHIGELLA SONNEI	14	8
SALMONELLA PARATYPHI	7	3
CANDIDA ALBICANS	55	42
ECHO - VIRUS	16	5

From the submitted results follows, that the method of bioresonant testing by **"Sensitiv Imago"** to detect pathogenic and conditionally pathogenic agents in the most cases excels the results of bacteriological analysis. So, the Proteus vulgaris, Echo-virus could be detected practically 2 times more often. The ability of the given method to reveal Salmonella Paratyphi, Shigella Sonnei, Lamblia Intestinalis is important to detect the carriage of bacilli, and hence, this method can be used to detect asymptomatic forms of corresponding diseases. The detectability of Candida Albicans with **"Sensitiv Imago"** device makes practically 96,5 % (55 patients from 57) while the bacteriological analysis could find Candida Albicans with 73,7 % (42 from 57 patients). In view of the circumstance, that all the examined patients had in the anamnesis antibiotika therapy, carried out recently, and on the basis of the

percentage ratio given above, the results of bioresonant diagnostics can be considered as the most authentic in comparison with the results of bacteriological analysis.

Hence, on the ground of the results obtained with the method of bacteriological analysis and with bioresonant testing by device **"Sensitiv Imago"** we can conclude, that the last one is better to be used to detect the disordered interna microbiocenosis.

The used materials:
1. Материалы научно-практической лаборатории «Резонанс».
2. В.И.Молотков. Дисбактериоз.// «Посольство медицины», medicus.ru.