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PROGNOSTICATION OF POLYP LESION STRUCTURE OF THE COLON PORTIONS FOR NEAR-TERM OUTLOOK

Abstract. *to prognosticate the structural parameters of polyp lesions of the colon for 2018 in Lviv region. Retrospective analysis of 51 consulting conclusions concerning the cases of polyp lesion of the colon has been performed. Consulting was conducted at the Department of Pathologic Anatomy and Forensic Medicine, Danylo Halytsky Lviv National Medical University for the period of 2016. With the purpose to prognosticate the structural parameters of polyp lesions of the colon for 2018 we have applied the method of exponential smoothing: Holt two-parametric method. The sense of this method is the following: results of prognostication are constantly adapted to new information obtained, which in its turn increase the accuracy of prognostication reliably. Therefore, the results of prognostication depend mostly on the rates which are most closely to the beginning of a prognosticating period (in our case these are investigations of 2016), and as the parameters are further from the end of the dynamic line they less influence upon the results of prognostication. The study demonstrated a tendency to increase of certain histological kinds of colon polyps and their topographic location. It can be affirmed that for near-term outlook under other unchanged conditions in Lviv region the tendency to increase of five histological kinds will be observed: inflammation polyp, tubular adenoma, papillary adenoma, hyperplastic polyp and juvenile polyposis. As to another nosology for near-term outlook there will be a tendency to their decrease in the structure of polyp lesions of the colon.*

Key words: *structure, polyps, adenomas, colorectal cancer.*

Introduction. the number of patients suffering from colon diseases has been constantly increasing. Every year the WHO estimates over 940 000 new cases of colorectal cancer. Colorectal cancer (CRC) is most often detected on later stages – the frequency of detection of the 3-4th stage is 70% of all the cases found [1]. CRC sickness rate is considerably higher after the age of 50, and its frequency has been increasing in recent twenty years [3]. Survival rate for the last five years has increased from 46 to 62%, although the value of this index is completely determined by the stage of the disease on the moment the diagnosis is made [1, 6]. Considering these data we have to admit that more than in the half of cases the diagnosis is late. At the same time, there are reliable evidences that reduced mortality due to CRC can be achieved by means of detection and treatment of its early forms together with detection and removal of adenomatous polyps [4].

Therefore, close to real cause of polyp frequency can be determined only as the result of

targeted preventive mass examinations of the population or dissection. The majority of cases have the period of latent (asymptomatic) course, followed by the signs of the disease not considered by the patient himself, and most often are characterized as “intestinal discomfort”, while pathomorphologic changes are available in the colon [2, 5, 6]. The commonest lesion of the colon is polyp (colon polyp - CP) including all the processes associated with protrusion of the mucous membrane into the colon lumen [1, 3, 4]. A part of them, adenomas in particular, belong to obligate pre-cancer formations, which in case of untimely diagnostics and inadequate treatment can transform into colorectal cancer [1, 5]. Prognostication of the structural parameters of obligate pre-cancer conditions can help to predict a probable number of cases on colorectal cancer for the nearest future.

Objective: to prognosticate the structural parameters of polyp lesions of the colon for 2018 in Lviv region.

Materials and methods: retrospective analysis of 51 consulting conclusions concerning the cases of polyp lesion of the colon has been performed. Consulting was conducted at the Department of Pathologic Anatomy and Forensic Medicine, Danylo Halytsky Lviv National Medical University for the period of 2016. With the purpose to prognosticate the structural parameters of polyp lesions of the colon for 2018 we have applied the method of exponential smoothing: Holt two-parametric method. The sense of this method is the following: results of prognostication are constantly adapted to new information obtained, which in its turn increase the accuracy of prognostication reliably. Therefore, the results of prognostication depend mostly on the rates which are most closely to the beginning of a prognosticating period (in our case these are investigations of 2016), and as the parameters are further from the end of the dynamic line they less influence upon the results of prognostication.

Results. While making prognostication concerning a part of polyp lesions in the colon (Fig. 1) on the basis of real findings (blue line) we have predicted the indices for 2018 (red line). The presented data demonstrate that the prognosticated indices are mostly effected by real values of the recent years (2014–2016), when the analyzed parameter decreased – even to its complete absence in 2015. Thus, a prognosticated value in 2018 will be 0,24%.

To determine an optimal pattern of prognostication we have determined alpha- (enables to determine the level of rank) and gamma- (enables to determine curve inclination) coefficients for every from the equation. Thus, we have developed an array of equations for every prognosticated parameter (location or histology), and the best ones were determined among them. The criteria of choice were the utmost

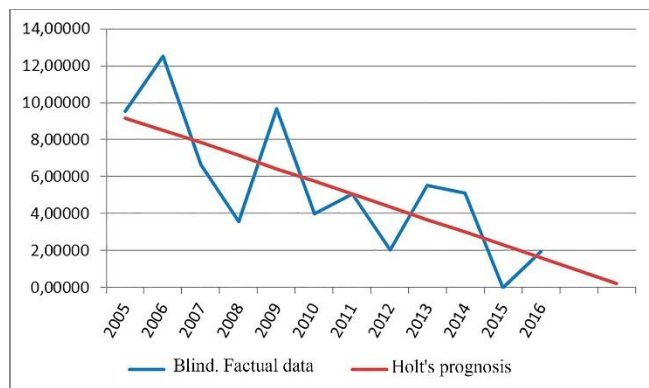


Fig. 1 Real and prognosticated values of a share of polyp lesions in the colon.

coincidence of conditionally prognosticated and real data, and the smallest average values of an absolute residue square. Therefore, in prognostication of a share of polyp lesions in the colon for 2018 an optimal equation has alpha-coefficient 0,01 and gamma-coefficient 0,01.

Discussion. Summarizing the results of work with the array of equations in prognostication of a share of polyp lesion depending on the location in the colon portions, we have designed the Table 1 presenting alpha- and gamma-coefficients to prognosticate a share of every portion for 2018.

Thus, using certain primary real data and obtained alpha- and gamma-coefficients we have prognosticated that in 2018 in Lviv region under other unchanged conditions the structure of polyp lesions of the colon depending on the location of a focus of lesion will be the one presented in Table 2. Therefore, it can be stated that in 2018 under other unchanged conditions in Lviv region a tendency to increase a share of polyp lesion in the transverse-segmented, descending and sigmoid portions of the colon will be found. In other portions there will be a tendency to decrease their share in the structure of polyp lesions in the colon. Similar to the prognostication of a share of polyp lesions depending on their location in the colon we have developed an array of equations to prognosticate the structure of histological types of polyp lesions for the nearest future. The most optimal alpha- and gamma-coefficients for every of such prognosis are presented in Table 3.

Table 1

Alpha- and gamma-coefficients of the obtained equations to prognosticate a share of polyp lesions in different portions of the colon for 2018.

No	Location	Alpha-coefficient	Gamma-coefficient
1	Cecum	0,01	0,01
2	Ileum	0,00	0,00
3	Hepatic flexure	0,00	1,00
4	Transverse-segmented	0,035	1,00
5	Spleen flexure	0,005	1,00
6	Descending portion	0,451	0,00
7	Sigmoid	0,02	1,00
8	Rectal-sigmoid junction	0,01	0,01
9	Rectum	0,034	0,00
10	Anus	1,00	0,00

Table 2

Prognosticated for 2018 structural parameters (%) of polyp pending on their location

No	Location	P±m, %
1	Cecum	0,24±0,05
2	Ileum	4,85±0,68
3	Hepatic flexure	0,02±0,01
4	Transverse-segmented	12,02±1,03
5	Spleen flexure	0,03±0,01
6	Descending	7,47±0,83
7	Sigmoid	38,04±1,54
8	Rectal-sigmoid junction	5,30±0,71
9	Rectum	32,00±1,48
10	Anus	0,03±0,01
	Total	100,00

Table 3

Alpha- and gamma-coefficients of the obtained equations to prognosticate a share of different nosology units of polyp lesions in different portions of the colon for 2018.

No	Nosology unit	Alpha-coefficient	Gamma-coefficient
1	Inflammation polyp	0,05	1,00
2	Fibrous polyp	0,451	0,00
3	Tubular adenoma	0,00	0,00
4	Papillary adenoma	0,012	1,00
5	Tubular-papillary adenoma	0,00	0,00
6	Hyperplastic polyp	0,653	0,00
7	Juvenile polyposis	0,00	0,00
8	Peutz-Jeghers polyposis	1,00	0,00
9	Family polyposis	0,944	0,00
10	Shaped polyp	0,00	0,086

Analogically, using the primary real data and obtained alpha- and gamma-coefficients we have prognosticated that in Lviv region in 2018 under other unchanged conditions the structure of polyp lesions in the colon depending on histological type would have the following presentation as in the Table 4.

Conclusions: therefore, it can be affirmed that for near-term outlook under other unchanged conditions in Lviv region the tendency to increase of five histological kinds will be observed: inflammation polyp, tubular adenoma, papillary adenoma, hyperplastic polyp and juvenile polyposis. As to another nosology for near-term outlook there will be a tendency to their decrease in the structure of polyp lesions of the colon.

Table 4

Prognosticated for 2018 the parameters of structure (%) of polyp lesions in the colon depending on histological type.

No	Histological type	P±m, %
1	Inflammation polyp	16,96±1,19
2	Fibrous polyp	0,18±0,03
3	Tubular adenoma	45,29±1,57
4	Papillary adenoma	20,20±1,27
5	Tubular-papillary adenoma	5,85±0,74
6	Hyperplastic polyp	9,22±0,91
7	Juvenile polyposis	2,25±0,47
8	Peutz-Jeghers polyposis	0,02±0,01
9	Family polyposis	0,00±0,00
10	Shaped polyp	0,03±0,01
	Total	100,00

Prospects of further studies: the results of the study are promising concerning their practical use; they can form a basis for diagnostics and prognostication of polyp lesion occurrence in future and as a result, a part of a probable risk group as to the development of colorectal cancer among the population of Lviv region.

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PECULIARITIES OF PRENATAL DIAGNOSTICS IN THE FIRST TRIMESTER OF GESTATION IN WOMEN WITH COMPLICATED OBSTETRICAL ANAMNESIS

Abstract. *With the purpose to improve prenatal diagnostics in women with habitual miscarriage of pregnancy cytogenetic examination (karyotyping) has been carried out. The investigations conducted and results obtained stipulate the necessity to perform medical-genetic consulting with karyotyping in the 1st trimester of pregnancy enabling to improve early and effective prenatal diagnostics of congenital developmental fetal defects with an accurate prognosis concerning the possibility to prolong pregnancy and manage it.*

Key words: habitual miscarriage of pregnancy, karyotyping.

Introduction. In spite of introduction and fulfillment of state programs in the sphere of public health recent decades in Ukraine are characterized by a considerable decrease of health index among the population resulting in reduction of its number [2, 5, 7]. There are certain reasons to believe that such tendencies are associated with a negative course of genetic processes in the Ukrainian population [1, 3, 6]. Congenital pathology is one of the leading causes of disability and low quality of life of children and adults both in the developed and developing countries of the world [4, 8]. The world medical statistics estimates approximately 5% of newborns diagnosed with congenital pathology [9]. 30-50 infants among those 1000 live births are known to have certain congenital or hereditary diseases. It should be noted that approximately 30% of perinatal and neonatal mortality is caused by the pathology with dominating genetic component.

«Genetization» of medicine resulted in the development of molecular medicine initiating new tendencies in medical science, and one of them is predictive medicine. Contrary to therapeutic and even preventive medicine it should be considered as the first and the earliest stage of an active effect on the human organism with the purpose to correct potentially possible pathology in time [2]. Karyotyping is a cytogenetic method enabling to find deviations in the

structure and number of chromosomes that can be a cause of infertility, congenital disease and birth of a sick child. There are two main especially important types of this examination in medical genetics: examination of chromosomes of patients' blood cells and prenatal karyotyping that is examination of the fetal chromosomes. Karyotype examination is carried out by means of cytogenetic and molecular-cytogenetic methods. The method enables to identify karyotype (peculiarity of structure and the number of chromosomes) by means of karyogram registration. Cytogenetic examination is carried out in a proband, his/her parents, relatives or fetus in case of suspected chromosome syndrome or other chromosome disorder.

Objective. With the purpose to improve prenatal diagnostics in women with complicated obstetrical anamnesis and habitual miscarriage of pregnancy in particular, a comprehensive examination has been conducted.

Materials and methods. At the initial stage of the investigation clinical-statistical analysis of case histories of women with habitual miscarriage of pregnancy was made (n=30, I group), the analysis of medical cards of practically healthy women was made for comparison (n=30, II group). Cytogenetic examination (karyotyping) of both groups was a final stage. Pregnant women of I and II groups differed considerably by age. The majority of women were from 21 to 30 years, although the

age of 33,3% of women with habitual miscarriage of pregnancy was more than 30. Considering the fact that occupation produces a certain effect on miscarriage of pregnancy we have examined peculiarities of working conditions and found that office workers constituted the most numerous group (46,7% and 43,3%), workers of the industrial and agricultural enterprises were on the second position (30,0% and 33,3%), housewives were the rest. Primary disorders of hypothalamic-pituitary regulation have been convincingly proved to play a certain role in the pathogenesis of habitual miscarriage of pregnancy, as a rule manifested by menstrual disorders. To specify the role of this factor in the development of the disease among patients of our region the character of menstrual function since the moment of menarche was studied. The age of menarche was found to range from 10 to 16 in both groups, an average index was $13,5 \pm 1,3$. None of the women was found to have early menarche, although in 13,3% of women from I group sexual maturation delayed and the first menstruation occurred after 15 years of age.

Results. Analysis of the volume of menstrual blood loss found that in 73,3% of patients and 76,7% practically healthy women moderate menstruations occurred that was of no reliable difference. 23,3% women from II group had a tendency to excessive menstruation, while pregnant women with habitual miscarriage presented an opposite situation (26,7% of women indicated hypo- and oligomenorrhea, and irregular menstruations since the moment of menarche). Menstruations were painless in the majority of patients (86,7% and 83,3%, respectively), the rest of them were with painful syndrome, although these data did not differ reliably. Among previously experienced gynecological diseases women with habitual miscarriage of pregnancy suffered from exacerbation of salpingo-oophoritis, cervical erosion, although these findings also did not differ reliably in comparison with the data from II group. It is an interesting fact that polycystic ovary syndrome was found in 23,3% of women from I group without pregnancy, while none of the women from II group suffered from this nosology.

Discussion. Chronic extragenital diseases were found in 66,7% of women with habitual

miscarriage of pregnancy and in 53,3% of pregnant women with uncomplicated anamnesis. It should be noted that the structure of extragenital pathology in both groups was different. Thus, practically healthy women in general suffered from chronic cholecystitis, gastroduodenitis, colitis, pyelonephritis, and pancreatitis. Women with habitual miscarriage of pregnancy since their childhood had been suffering from different degrees of obesity, chronic decompensated tonsillitis, vegeto-vascular disorders of different types (with prevailing hypertensive component), diffuse nontoxic goiter, varicose dilation of veins of the lower limbs.

Karyotyping was conducted for 30 pregnant women with complicated obstetrical anamnesis according to indications from their parents' side. Analysis of karyotyping results determined that all the examined people had a female karyotype – 46, XX. 30,8% of them had deviations in the structure of chromosomes. Changes in the structure of a short arm of the 9th chromosome (9p+) were found in 23,3% of women (46,XX,9qh+; 46,XX,9ph). Polyploid metaphase plates were found with the same frequency which is indicative of mitosis prophase pathology in the form of chromosome conjugation, which initiates multipolar mitosis at the stages of metaphase and anaphase. Polyploid multinuclear cells are formed in the result of pathology of telophase. In single cases the following pathologic karyotypes were found: 46,XX, 1qh; 46,XX, 13stk+s+; 46,XX, homolog heteromorphism; 46,XX, 21pstk, plate with translocation 2:13; 46,XX, 15stk+s+, 22pstk+s+.

Conclusion. Therefore, investigations conducted and results obtained stipulate the necessity to perform medical-genetic consulting with karyotyping in the 1st trimester of pregnancy enabling to improve early and effective prenatal diagnostics of congenital developmental fetal defects with an accurate prognosis concerning the possibility to prolong pregnancy and manage it.

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