groups of defects depending on the presence / absence of impaired heart failure, but also nosological groups of defects. It is estimated that the prevalence of CHD association with patent ductus arteriosus considerably increased depending on the expression of the heart failure ($p<0.0001$), see tabe2.

Complicated (complex) CHDs more often were associated with patent ductus arteriosus (51.3% as against 19.8%, $p<0.0001$), see table 3.

According to the logit and regression analysis with the correction of the gestation, it was determined (see table 4) that CHD with heart failure of 1st degree (NYHA classification 1) moderate interatrial septum defect or in association with patent ductus arteriosus less than 0.2 cm and CHD with HF of 1st and 2nd class and more (NYHA classification of the 1st and 2nd class and more), NYHA classification 2 and more were significantly associated with patent ductus arteriosus. Moreover, there is no significant association of patent ductus arteriosus with complex congenital malformation.

Conclusion: According to the logit and regression analysis, the association of the patent ductus arteriosus with other CHDs is most common for newborns with the gestation period of less than 32 weeks. The association of CHD with the patent ductus arteriosus differed not only groups of defects depending on the prevalence of the heart failure, but also the nosologic groups of defects. The prevalence of CHD association with patent ductus arteriosus depending on the heart failure expression is revealed. The patent ductus arteriosus was also associated with complex heart defects.

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DIAGNOSTIC AND TREATMENT METHODS

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THE RISK STRATIFICATION OF THE VENOUS THROMBOEMBOLIC COMPLICATIONS IN ONCOCOLOPROCTOLOGY

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The article is devoted to the problem of the venous thromboembolic complications stratification in cases of the colorectal cancer. We performed prospective, randomized, blind study in colorectal surgery department. We analyzed the TEC risk factors due to up-to-date recommendations of the 100 consecutive patients with operable colorectal cancer. The doctors didn't know about the study (blind) to decrease the ability for study aggravation. After all, 100 cases were get numbers and randomized by the method of random number for 2 groups: Main group (n50) – the TEC stratification performed by our method; control group (n50) – the TEC level got from history of the patients.

The underestimation of the risk level of these complications was revealed. The reason of this risk underestimation was the absence of some risk factors evaluation connected with the patients' comorbidity and surgery. The authors of the article described method of the thromboembolism risk stratification by new soft for PC with ability to evaluate the risk objectively, unified and with mathematical accuracy with minimal effort.

It was found out the patients suffering from colorectal surgery has extremely high risk of the thromboembolic complications.

Keywords: colorectal cancer, thromboembolic complications, thromboembolism of the pulmonary artery, stratification.

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Introduction. The problem of the venous thromboembolic complications (VTEC) of the oncological surgical patients is still urgent. The risk of VTEC at this case is 10 till 40% without prophylaxis and fatal in about 10% cases [11]. The VTEC is situated on the second place in the structure of mortality and take place approximately in 20% [2]. The recent investigations has shown high risk of VTEC in cases of colorectal cancer [1, 3, 7].

The multifactorial analysis has shown that the risk of lethal outcome, shock or thromboembolism of the pulmonary artery (TEPA) increased in 3 times during 30 days in case of cancer [14]. Obviously, the best method of TEC care is primary prophylaxis. The primary TEC prophylaxis is based on risk stratification and prophylaxis with accordance to risk level – physical, pharmacological (drug) or surgical methods. Nowadays, the most popular stratification scheme is method of Ch. Samama proposed in 1999 [15]. But, this scheme is based on only one factor evaluation that has most serious impact to thromboembolism. However, the TEPA risk is defined by summation of the risk factors connected with comorbid status and type of surgical intervention. Currently, we have a waste majority of the individual TEC evaluation with the point grading system of every risk factor [4, 9, 12].

But unfortunately these methods are quite complicated and that's why can't be useful in real clinical practice.

Objective – to improve the TEC prophylaxis for the patients with colorectal cancer.

The design of research. We performed prospective, randomized, blind study in colorectal surgery department. We analyzed the TEC risk factors due to up-to-date recommendations of the 100 consecutive patients with operable colorectal cancer. The doctors didn't know about the study (blind) to decrease the ability for study aggravation. After all, 100 cases were get numbers and randomized by the method of random number for 2 groups: Main group (n50) – the TEC stratification performed by our method; Control group (n50) – the TEC level got from history of the patients.

Materials and methods. We invented software "The program for automatic evaluation of the thromboembolic complications and its prophylaxis" (Russian state registration certificate for software for IBM PC №2015619184, from 26.08.2015). This software has interface of dialogue window with ability for a doctor to point the risk factors of TEC: the age (41-60, 61-74, 75 and more), risk factors connected with the patient (29 factors) and with the surgery (9 factors). The software automatically calculates the level of TEC risk (low, moderate, high and extremely-high) with the accordance to the quality and quantity risk factors individually to every patient due to up-to-date stratification models [4, 12]. Besides, our software offers the prophylaxis program individually with the accordance to the TEC risk level [6]. The software also has ability to calculate the prophylactic and cure dose of the most actual anticoagulants in appliance with the patients' weight. After all, the doctor has ability to print the protocol of stratification and put it into the history case. This protocol reflects all risk factors and overall risk level for every patient to protect doctor in a case of judicial trial.

Results and discussion. Both groups weren't statistically differing by the age. The age of patients has a great impact to TEPA stratification: 41-60 years – 1 points, 61-74 years – 2 points, 75 and more – 3 points. First group average age was 63,32±7,58 years (31 - 81 years), the second group - 64,21±5,62 (34 – 80 years). It's necessary to stress that both groups has more than 70% patients with the age more than 61 years and more than 20% among them was in a group of the maximal risk by the age – more than 75 years and only 2 (4%) patients of the first group and 1 patient (2%) of the second group wasn't in a high TEC risk because of the age less than 40 years.

All patients had colorectal cancer. But the localization of the tumor doesn't matter due to our program and correspond to 2 points.

All patients were passed through the radical surgery with the duration more than 45 minutes that is also risk factor with 2 points.

Moreover, the patients of the both group had risk factors: varicose of the leg veins – n=8 (16%) of the main group and n=11 (22%) of the second group, the leg puffiness – n=10 (20%) and 12 (24%) accordingly, obesity – n=11 (22%) and 8 (16%) accordingly, chronic obstructive disease n=7 (14%) and n=5 (10%). Furthermore, the coexistence of 4 and more factors was in 92% for the 1 group and 86% for the second. Thus, all patients of both groups had extremely high risk of TEC (more than 5 points).

Nonetheless, all patients of both groups got TEC prophylaxis only in a level of compression therapy and early activation of the patients after the surgery (no more than 72 hours). This prophylaxis program corresponds to the moderate level of TEC risk. And only one case of the main group and 2 cases of the control group correspond to the level of the high TEC risk because of the decompensated varicose disease of the leg veins that's why patients were consulted by angiosurgeon, ultrasound investigation performed and after all anticoagulants in prophylactic dosage were used in perioperative period.

Thus, the main group patients had average risk level 6,69±1,2 points (from 5 till 10 points). If we took as a basis that control group had prophylaxis of TEC due to recommendations for the moderate risk level with no more than 2 points of TEC risk factors, we found statistically true difference (p=0,023) between the patients of the main and control group because of the underestimation of the TEC risk by doctors without software. Some authors shown us in their investigation that this underestimation of the TEC risk is worldwide tendency [8, 13]

In spite of this, we didn't get manifested TEC in both groups. Though, some researchers shown [5, 10] that even fatal TEPA can occur in remote period after the surgery and discharge form the hospital.

Our software is very simple in usage – to fill the forms surgeon need no more than 1 min. The possibility to print the protocol of stratification let us to get objective calculation of the TEC risk score and protect the doctor from some juridical problems.

Conclusions. "The program for automatic evaluation of the thromboembolic complications and its prophylaxis" gives us opportunity to evaluate objectively the risk of thromboembolical complications;

Patients suffering from colorectal cancer and passed through the radical surgery have extremely high risk of TEC.

The accuracy of the TEC stratification by our method corresponds to modern recommendations and surgeon could be protected from some legal problems;

Our method allows optimizing and unifies the prophylactic of the TEC program.

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CLINICAL AND EPIDEMIOLOGICAL ASPECTS OF CHRONIC MYELOPROLIFERATIVE DISEASES IN THE REPUBLIC SAKHA (YAKUTIA)

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Chronic myeloproliferative diseases are characterized by excessive proliferation of myeloid cell lines and a high risk of thrombotic complications. The **purpose** of the research was to analyze the clinical features and epidemiology of chronic myeloproliferative diseases in the Republic Sakha (Yakutia). We carried out a retrospective analysis of medical records of patients followed-up by hematologists of Yakutsk from 1995 to 2018. The study included 104 patients, 39 of them were diagnosed with ET (27 women and 12 men), 40 had PV (21 women and 19 men), and 25 had PMF (11 women and 14 men). The diagnosis was established based on the current diagnostic criteria of the World Health Society (WHO).

The results of study demonstrated an increase of disease incidence in 2015-2016, prevalence of thrombotic complications among people younger than 60 years and the prevalence of the latent onset of the disease. The average time from thrombosis onset to disease diagnosis was 1 year. Arterial thrombosis such as acute disorders of cerebral circulation and myocardial infarction occurred more often.

It is necessary to carry out a molecular genetic study to identify driver mutations. During follow up 19.4% of patients have developed re-thrombosis.

Keywords: chronic myeloproliferative diseases, thrombosis, cardiovascular risk.

Introductio. Chronic myeloproliferative diseases (CMPD) result from malignant transformation of pluripotent stem cell followed by clonal proliferation of one or more myeloid cell lines (erythroid, myeloid, megakaryocytic) that differentiate into mature forms. Mutations of genes *JAK2*, *MPL* and *CALR,* leading to hyperactivation of the JAK-STAT signaling pathway, play a key role in developing CMPD [11, 13]. Polycythemia vera (PV) is characterized by proliferation of three myeloid cell lines, while in essential thrombocythemia (ET) hyperplasia of the megakaryocytic line with thrombocytosis are mainly observed. In case of primary myelofibrosis (PMF) abnormal megakaryocytes produce cytokines leading to the development of bone marrow fibrosis and extramedullary hematopoiesis [7].