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LEVEL OF COMPETENCE OF RURAL PHYSICIANS IN PRIMARY HEALTH CARE IN THE DIAGNOSIS OF MALIGNANT NEOPLASMS OF MAIN LOCALIZATIONS

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УРОВЕНЬ КОМПЕТЕНТНОСТИ СЕЛЬСКИХ ВРАЧЕЙ ПЕРВИЧНОЙ МЕДИКО-САНИТАРНОЙ ПОМОЩИ В ВОПРОСАХ ДИАГНОСТИКИ ЗЛОКАЧЕСТВЕННЫХ НОВООБРАЗОВАНИЙ ОСНОВНЫХ ЛОКАЛИЗАЦИЙ

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Objective. To analize the level of rural PHC doctors` competence on the issues of diagnosis and routing patients with suspected cancer.
Materials and methods. The study was conducted using a survey of medical workers involved in the diagnosis of malignant neoplasms of four main localizations (specialist doctors and paramedics of examination rooms) of the Central District Hospital of five rural municipal districts of the Magnitogorsk oncological cluster of Chelyabinsk region. 35 physicians took part in the study.
Results. The results of the survey were quite negative: the minority of respondents are aware of the exact duration of the mandatory initial diagnostic examination, the period of informing the oncologist about the patient diagnosed with cancer, and the scheme for assigning municipal medical organizations to outpatient oncology centers.
Conclusions. The surveyed contingent is characterized by: low oncological alertness and unsatisfactory competence concerning the initial manifestations of malignancies; inclusion of symptoms of the formed cancer in the number of early manifestations of malignancies, which means that a doctor, unsure of the diagnosis, as if waiting for the appearance of an obvious, from his point of view, symptom of a tumor, and as a result, the patient has an advanced stage of cancer; 3) flawed ideas about the full list of necessary methods for diagnosing malignant neoplasms of leading localizations; unsatisfactory knowledge of regulatory documentation on the routing of patients with suspected cancer.
Keywords. Uterine breast, lung and prostate cancer, rural health care.

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Цель. Анализ уровня компетентности сельских врачей по вопросам диагностики и маршрутизации пациентов с подозрением на злокачественные новообразования.
Материалы и методы. Исследование проведено с помощью анкетирования 35 медицинских работников (врачи-специалисты и фельдшеры смотровых кабинетов) центральных районных больниц пяти сельских муниципальных районов Магнитогорского онкологического кластера Челябинской области, участвующих в диагностике злокачественных новообразований четырёх основных локализаций.
Результаты. Анализ ответов опрошенных выдал весьма негативный результат: точную продолжительность обязательного первичного диагностического обследования, срок информирования онколога о выявленном больном со злокачественными новообразованиями и схему закрепления муниципальных медицинских организаций за центрами амбулаторной онкологии знает явное меньшинство опрошенных.
Выводы. Опрошенный контингент характеризуется: низкой онконастороженностью и неудовлетворительной компетенцией по вопросам начальных проявлений злокачественных новообразований; включением симптомов сформировавшегося рака в число ранних проявлений злокачественного новообразования, т.е. врач, не уверенный в диагнозе, ориентируется исключительно на очевидный симптом опухоли, игнорируя косвенные признаки заболевания, а в результате у пациента диагностируется запущенная стадия рака; недостаточными представлениями о полном перечне необходимых методов диагностики злокачественных новообразований ведущих локализаций; неудовлетворительными знаниями нормативной документации о маршрутизации пациентов с подозрением на злокачественное новообразование.
Ключевые слова. Рак тела матки, молочной железы, легкого и предстательной железы, сельское здравоохранение.

INTRODUCTION

According to the database from Globocan, which is generated by the International Agency for Research on Cancer and which includes primary cases of malignant neoplasms (MN) in 28 localizations from 184 countries. By 2018, the total number of MNs was more than 14 million cases with about 8 million deaths per year. Among all cases of MNs, the first place is taken by lung cancer (LC) (13.0 %) and the second place is taken by breast cancer (BC) (11.8 %) [1; 2].

There is also a steady growth of MNs in the Russian Federation. For example, the incidence rate increases by 1.5 % annually. The total mortality from oncologic tumors is on 2nd place after diseases of the circulatory system [3; 4]. The "record" on detection of new cases of MNs was updated in 2019. More than 640 thousand cases were detected, which is 2.5 % higher than the data of 2018. [5]. Since 2018, according to the data of The Moscow Research Institute named after Pyotr Alexandrovich Herzen, the main MNs in terms of detectability among women are BC (51.5 %) and uterine corpus cancer (UC) (18.9 %), among men are LC (47.6 %) and prostate cancer (PC) (41.6 %) [6].

If at the beginning of the XXI century, the incidence of PC reached 700 thous. new cases per year, the current total number of registered new cases of PC is more than one million, of which 119 thous. are registered in developing countries and 895 thous. in economically developed countries [7; 8]. The highest incidence of this type of cancer is traditionally registered in Scandinavian countries. There are 55.3–61.4 cases

per 100,000 men [9]. UC, which is the main pathology in gynecologic oncologic patients, also shows a steady increase in the number of new cases. It is almost 320 thous. per year with a mortality rate of 75 thous. cases [10; 11]. At the same time, a systematic increase in the incidence of the four leading localizations of MNs is of particular concern among the oncologists all over the world due to the high level of neglect of detected cases [5; 12].

When analyzing the reasons for the high rate of MNs neglect, the most common cause is insufficient funding. Indeed, in many territories of the country there is a deficit of financing of the "Program of state guarantees of free medical care for citizens". The total underfunding in 50 regions of the Russian Federation is almost 125 billion rubles. In addition, it is expected that the Ministry of Health will receive less in the current year than in the previous year due to a significant adjustment of the federal budget. All these factors force most regions to plan the volume of medical care based on financing rather than on the real needs of the territory's residents [13; 14] and on the material and technical equipment of diagnostic departments. Taking into account these circumstances, the main aims of primary health care (PHC) facilities are to establish a preliminary diagnosis of MNs, at the same time the competence and oncological alertness of medical personnel, as well as the optimization of exam rooms and medical check-ups are very important [15; 16].

The aim of the study is to analyze the level of competence of rural physicians in diagnosing and routing patients with suspected malignant neoplasms.

MATERIALS AND METHODS

The one-stage sociological research was conducted by surveying medical specialists and paramedics of exam rooms in the central district hospitals (CDH) of five rural municipal districts of the Magnitogorsk oncological cluster in the Chelyabinsk region.

The study was conducted between March and January 2020 on the base of CDHs of Agapovsky, Verkhneuralsky, Nagaybaksky, Bredinsky and Kizilsky rural municipal districts of the Chelyabinsk region. The actual survey was carried out during production meetings at the respondents' place of work. This stage of the research was conducted in accordance with the Federal Law of 27.07.2006 No. 152-FZ "On Personal Data".[1] Each respondent gave written permission to participate in the survey.

The inclusion criteria of the respondents were: length of service in the current occupation and employment in a rural area for more than five years.

Non-inclusion criteria: medical specialization does not involve contact with cancer patients.

The exclusion criteria are: length of service in the current occupation and

[1] On personal data: Federal Law No. 152-FZ of 27.07.2006. M. 2006; 5.

employment in a rural area for less than five years.

35 physicians participated in the study, including seven obstetrician-gynecologists, seven primary care physicians, four surgeons, four general practitioners (GPs), three urologists, seven paramedics of female exam rooms and three paramedics of male exam rooms of outpatient clinics. This means that potentially all of these health care employees could have had contact with cancer patients, which makes the current study as a cohesive study.

The study was conducted on the general total of health employees of five CDHs who have contact with cancer patients.

Statistical methods. Statistical processing of questionnaires included data grouping, database formation, construction of combination tables, calculation of extensive indicators. The measurement was done in percentages, as the main and additional targets are extensive indicators.

The conducted study complies with the standards of the Declaration of Helsinki and was approved by the Independent Ethical Committee of the Federal State Budgetary Educational Institution of Higher Education "South Ural State Medical University" of the Ministry of Health of the Russian Federation (Protocol No. 29 of 11.05.2022).

RESULTS AND DISCUSSION

The main of a whole group of factors influencing the quality of medical care are professional competence and experience of medical personnel. In the case of oncology care provided at the level of municipal rural health care, this applies to primary care physicians, general practitioners, obstetricians-gynecologists, urologists, surgeons of outpatient clinics and paramedics of male and female exam rooms.

The studied contingent of these specialists consisted of women in 65.8 %. These are all obstetricians-gynecologists, there are 85.8 % of paramedics of female exam rooms and the same number of district therapists. Men predominantly work as surgical specialists – 75.0 % of surgeons, 100 % of urologists, and 66.8 % of paramedics in male exam rooms.

20.0 % of all surveyed are retirees. The highest share is among GPs (50.1 %). Respondents under 30 years of age are only 11.5 %, there is a deficit associated with the age turnover of doctors in the surveyed rural CDHs. However, the age of health workers can only indirectly indicate about their experience; the study of length of service in the specialization is more informative for this purpose.

As shown in Table 1, the share of respondents who have experience allowing to obtain the highest qualification category or at least the first one, i.e. more than 10 years, is 85.6 %. This means that this is the majority of those surveyed, but in reality only every fifth person has the highest category – the majority of urologists (66.6 %) and paramedics of male exam rooms (33.4 %). Only every tenth respondent received the 1st qualification category. As a result, there is a significant share of those among the respondents whose

long professional experience is not characterized by an appropriate qualification assessment. In general, the length of professional experience was weakly correlated ($r = +0.24 \pm 0.008$) with the possession of qualification score among the surveyed medical workers.

As postgraduate education in various forms has an extremely positive impact on the level of professional training of medical personnel, it was obligatory to clarify the fact of professional retraining. It was determined that the vast majority of respondents (85.6 %) have improved their professional qualifications in various forms over the past five years. The share of those who did not pass it is not high, it is only 8.5 %.

They are all recent graduates of medical universities and have not yet completed their mandatory postgraduate training. As a result, only 5.9 % of respondents did not complete mandatory professional training. As oncology is compulsorily included in the programs of all professional development cycles of all specialties, it is obvious that the majority of the surveyed should have knowledge of modern diagnostics of MNs and routing of such patients. Routing of MNs patients is described in detail in the order of the Ministry of Health of the Chelyabinsk region from January 19, 2018 № 68[2] and in the order of the Ministry of Health of the Chelyabinsk region from 27.01.2020 № 65[3]. Taking into account the information contained in these documents, tests were formed to analyze the respondents' knowledge about the duration of the initial diagnostic examination, the period of informing an oncologist about a patient with MNs, and the assignment of rural CDHs to ambulatory oncological care centers (CAOPs).

The analysis of the answers of the respondents revealed an unexpected result: only a small part of the respondents know the exact duration of the mandatory primary diagnostic examination from the moment of suspicion of MNs – from 14.4 % of paramedics in female exam rooms to 50.1 % of surgeons, while primary care physicians and general practitioners have no information on these issues at all. Only two-thirds of paramedics of male exam rooms have some perceptions related to this issue.Moreover, an extremely negative situation has developed with regard to the issue of the timeframe for informing an oncologist about a detected patient with MNs. Only a few obstetrician-gynecologists and primary care physicians have knowledge of the maximum allowable time frame. This period can be in the range of up to 10 days for the majority of respondents. Respondents represent the scheme of assignment

[2] On the routing of adult patients in the provision of medical care in the profile of oncology in the Chelyabinsk region: order of the Ministry of Health of the Chelyabinsk region No. 68 from 19.01.2018. Chelyabinsk 2018; 20.

[3] Schemes of attachment of medical organizations and municipalities of the Chelyabinsk region to the Centers of outpatient oncological care: order of the Ministry of Health of the Chelyabinsk region No. 65 from 27.01.2020. Chelyabinsk 2020; 20.

Table 1

Distribution of respondents by length of professional experience, %

Health care workers	Length of work experience, in years					
	0–5	6–9	10–14	15–19	more than 20	total
GP	24.8	24.8	–	–	50.4	100
Obstetrician-gynecologists	14.5	–	–	14.5	71.0	100
Surgeons	–	–	–	24.9	75.1	100
Primary care physicians	–		29.0	–	71.0	100
Urologists	–	–	–	33.4	66.6	100
Paramedics of male exam rooms	–	–	33.7	–	66.6	100
Paramedics of female examining rooms	14.2	14.2	43.2	14.2	14.2	100

Table 2

Distribution of respondents by degree of awareness of the main sections of the orders of the Ministry of Health of the Chelyabinsk region from 19.01.2018 No. 68 and from 27.01.2020 No. 65, %

Health care workers	Provisions of the orders					
	Duration of the initial diagnostic examination		Timeframe for informing an oncologist about a detected patient with MNs		Assignment scheme to outpatient oncology centers	
	know	do not know	know	do not know	know	do not know
GP	–	100.0	–	100.0	–	100.0
Obstetrician-gynecologists	28.5	71.5	14.4	85.6	57.0	43.0
Surgeons	50.1	49.9	–	100.0	25.2	74.8
Primary care physicians	–	100	14.4	85.6	57.0	43.0
Urologists	33.4	66.6	–	100.0	66.9	33.1
Paramedics of male exam rooms	66.6	33.4	–	100.0	66.4	33.6
Paramedics of female exam rooms	14.4	85.6	–	100.0	71.7	28.3

of municipal medical organizations to outpatient oncology centers relatively well: 49.1 % of all respondents completely correctly represent it. The remaining respondents, in addition to the correct referral of the patient, may issue an erroneous referral to some regional cancer hospital.

As all medical workers of rural CDHs who could come into contact with cancer patients were familiarized "by signature" with the above orders, this level of awareness of CDH doctors should be considered unsatisfactory.

Despite the necessity of knowledge of normative documentation concerning the routing of patients with MNs, the level of competence of medical personnel in the symptoms of MNs and methods of their di-

agnosis remains the main issue in the study of the causes of neglect of MNs of the leading localizations. Primary care physicians, GPs, surgeons and paramedics of male exam rooms are involved in diagnosing LC in CDHs in rural areas. The analysis of their competence in the clinical picture and in the obligatory methods of LC diagnosis revealed a number of very negative facts (Table 3): the knowledge of early symptoms of central LC is correctly formed in a clear minority of primary care physicians (14.4 %) and only every fourth surgeon and one third of paramedics of male exam rooms. Only among GPs, three out of four specialists correctly identify the symptomatology of central LC. It should be noted that one third of respondents from among those who have insufficient knowledge of early symptomatology of central LC mention symptoms of later stages of the disease in addition to early symptoms.

The situation with respondents' competence in the clinical symptomatology of peripheral LC is similarly bad. Thus, only half of surgeons, a quarter of GPs and 28.8 % of primary care physicians have a good knowledge in this question. There is no one among paramedics of male exam rooms who knows the symptomatology of peripheral LC. All surgeons, three out of four primary care physicians, half of GPs and every third paramedic of male exam rooms fully know the mandatory list of diagnostic methods for central LC.

Surgeons, GPs, obstetrician-gynecologists and paramedics of female exam rooms are involved in the diagnosis of breast cancer in rural areas. An analysis of their competence in the clinical picture and diagnostic methods of breast cancer revealed an equally dismal situation as in LC (Table 4). Thus, only 85.50 % of obstetrician-gynecologists, 57.4 % of paramedics of female exam rooms, half of surgeons and a quarter of GPs are correctly informed about the early symptoms of breast cancer. Moreover, four out of five respondents, who have insufficient knowledge of the clinical picture of the early stages of breast cancer, cite both the early and late symptoms of breast cancer at the same time.

Table 3

Share of respondents with correct understanding of the clinical picture and methods of diagnosing LC, %

Health care LC workers	Awareness of clinical picture and diagnostic methods					
	Early symptomatic of central LC		The difference in the clinical picture of central LC from peripheral LC		Methods LC diagnostics	
	know	do not know	know	do not know	know	do not know
GP	75.0	25.0	25.0	75.0	50.0	50.0
Surgeons	25.0	75.0	50.0	50.0	100.0	–
Primary care physicians	14.4	85.6	28.8	71.2	71.4	28.6
Paramedics of male exam rooms	33.3	66.7	–	100.0	33.3	66.7

Table 4

Share of respondents with correct understanding of the clinical picture and methods of diagnosing breast cancer, %

Health care workers	Knowledge of the clinical picture and methods of diagnosis of breast cancer			
	Early symptoms of breast cancer	Clinical picture of an established breast cancer	Methods of diagnosing breast cancer	Term of palpation of the mammary glands
GP	25.0	–	–	75.0 %
Surgeons	50.0	–	–	–
Obstetrician-gynecologists	85.5	42.6	14.4	71.3
Paramedics of female exam rooms	57.4	14.4	–	57.2

It is difficult to explain the unsatisfactory competence of the respondents in the clinical symptomatology of the established breast cancer against the background of relatively sufficient knowledge of the early symptoms of breast cancer. Only 42.6 % of obstetrician-gynecologists and 14.4 % of paramedics of female exam rooms are well versed in this question. There is no single GP or surgeon who is competent in these issues. Also, GPs, surgeons and paramedics of female exam rooms are incompetent in the methods of diagnosing breast cancer. It is disappointing that among obstetrician-gynecologists, the majority (85.6 %) are also unaware of the full range of obligatory diagnostic methods for detecting breast cancer.

Only 71.3 % of obstetrician-gynecologists, three out of four GPs and half of the paramedics of female exam rooms know the basic principle of breast palpation, specifically the period of palpation to detect possible pathology, while no surgeon has any understanding of it.

Urologists and paramedics of male exam rooms are involved in the diagnosis of PC in rural areas. Analysis of the degree of competence of these specialists in the clinical picture, methods and stages of diagnostics of PC showed the following result: only two out of three urologists and one out of three paramedics of male exam rooms correctly realize the clinical picture of PC (Table 5). However, all specialists have a correct understanding of the tumor marker for PC, but none of them knows about all obligatory methods of examination in case of suspected PC; only one third of urologists are informed about the stages of PC diagnosis.

Only obstetrician-gynecologists and paramedics of female exam rooms are involved in the diagnosis of UC in the surveyed municipal districts. Their competence in comparison with the knowledge of those specialists who are involved in the diagnosis of the other three MNs is on a higher level (Table 6). First of all, this is due to the fact that the majority of obstetrician-gynecologists and paramedics of female exam rooms (85.5 %)

Table 5

Share of respondents with correct understanding of the clinical picture and methods of diagnosing PC, %

Health care workers	Knowledge of the clinical picture and diagnostic methods of PC			
	Clinical picture of PC	What is a tumor marker for PC	Diagnostic methods for BC	Diagnostic stages of PC
Urologists	66.7	100.0	–	33.3
Paramedics of male exam rooms	33.3	100.0	–	–

Table 6

Share of respondents with correct understanding of the clinical picture and diagnostic methods of UC, %

Health care UC workers	Knowledge of clinical picture and diagnostic methods					
	Clinical picture of UC		High-incidence symptom of UC in the period of menopause		Diagnostic methods for UC	
	know	do not know	know	do not know	know	do not know
Obstetrician-gynecologists	85.5	14.5	85.5	14.5	71.5	28.5
Paramedics of female exam rooms	85.5	14.5	71.5	28.5	57.3	42.7

correctly represent the clinical picture of UC. Moreover, they are well aware of the symptomatology of UC among women in menopausal period (85.5 % and 71.5 % of specialists, respectively).

The situation is slightly worse with the knowledge of the list of obligatory diagnostic methods for suspected UC: 71.5 % of obstetrician-gynecologists and 57.3 % of paramedics of female exam rooms fully know the necessary diagnostic methods.

Respondents were asked to make suggestions in the open question of the questionnaire on how to improve the negative situation caused by the high rate of MNs prevention. The activity of respondents regarding this issue was low.

As can be observed from the data obtained, almost every second respondent (57.3 %) proposed very unrealistic measures, which do not take into account the real situation of logistics supply and low availability of physicians working with mammographs in rural medical hospitals of the Chelyabinsk region. There is no doubt that continuous prostate-specific antigen (PSA) testing and mammography from the age of 40 will improve the diagnosis of MNs, but first of all there is a need for all physicians to increase their knowledge of diagnosing the early stages of MNs.

The medical workers' suggestions for reducing the distance between the attached CDH and outpatient oncology centers do not take into account the mutual location of cities and rural municipal areas in the region. The Regional Ministry of Health has to proceed from the situation that the cities,

which are the location of the CAOP, are more than 100 kilometers away from many rural settlements.

Certainly, it should be agreed with the suggestions of specialists that fluorography is uninformative in the diagnosis of early stages of LC, but there is no alternative substitute for it. The suggestion of the need for staffing of district oncologists is surely correct and has the potential to improve the situation of neglect in surveyed three of the five areas. It is not unexpected that suggestions for fines for violations in diagnosis, routing and dispensary monitoring of cancer patients were made by only a few respondents. Firstly, all serious violations are not left without material penalties under the system of labor remuneration under the "effective contract". Secondly, the implementation of fines for minor offenses in conditions of low staffing of rural hospitals with doctors will only exacerbate the problem of medical personnel in rural areas.

Conclusions

Thus, the study of rural PHC competence in diagnosing MNs of the main localizations revealed that serious problems related to subjective factors on the part of medical personnel have formed in rural municipal healthcare:

1) low oncological awareness and unsatisfactory competence of all surveyed medical workers regarding the early symptoms of MNs of the leading localizations;

2) a special reason of serious neglected cases is the inclusion of symptoms of the established MNs among the few early symptoms, in other words, the doctor, not sure of the diagnosis and focuses on the appearance of an obvious, from his point of view, symptom of the tumor, and as a result, the patient is diagnosed with a neglected stage of cancer;

3) flawed understanding of the full list of necessary diagnostic methods for MNs of the leading localizations, as well as the absolutely inadmissible fact of ignorance of the timing of breast palpation in suspected breast cancer;

4) unsatisfactory knowledge of normative documentation about routing of patients with suspected MNs by the majority of interviewed specialists, combined with understaffing of district oncologists, reduces the chances of patients to detect cancer at early stages.

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