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The Modern Aspects of the Activity of Radiology Service in Uzbekistan

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Summary: Radiation diagnostics in Uzbekistan is undergoing a stage of rapid development. The main purpose of the service of radiation diagnosis is increasing the availability and quality of beam technologies. In recent years it has greatly improved the material and technical base of the service: the share of digital X-ray equipment and ultrasound equipment, park of tomographic equipment increased by 25%. Fluorographic studies were performed primarily in the digital units (2005 —18.9% 2013 — 78.6%). There have been open the centers of positron emission tomography, allowing to change the stage of the disease in 60% of cases and to correct the treatment tactics. This is a problem of staffing - the staffing of radiologists in Uzbekistan medical organizations is 54%. Insufficient productivity of beam diagnostics, at the level of outpatient care 70% of the volume of activity in the service departments such as inpatient clinics is associated with the duplication of research and examination of the patient with the "zero cycle". It requires a radical change in the organization of radiation diagnosis and training of specialists at the present level.

Keywords: radiology service, Radiodiagnostics, organization, staffing, computed tomography (CT), magnetic resonance imaging (MRI), positron emission tomography (PET).

As throughout the world, radiation diagnostics in Uzbekistan is undergoing a stage of rapid growth [3,13,14,18,20,22]. In the arsenal of radiation diagnosticians, along with traditional X-ray, ultrasound and radionuclide methods, an increasing number of high-tech techniques are appearing: multi-slice spiral computed tomography (MSCT), magnetic resonance imaging (MRI), positron emission tomography (PET). This makes it possible to carry out unique studies, significantly reduce the time required for examining patients, increase the accuracy of diagnosis, carry out diagnostics at the outpatient stage, identify many socially significant diseases at earlier stages, ensuring not only a reduction in the time of treatment for patients, but also a significant improvement in its results [24,26,27,29].

In modern conditions of functioning of Russian medical organizations, the urgent problem is the creation and implementation of a form of management of the radiology service, ensuring maximum efficiency of activity with high quality of service provision and minimal costs. The main goal of developing a radiation diagnostic service is to increase the availability and quality of radiation technologies for the general population [1,2,19,23,24].

A potential basis for planning health care resources necessary to meet the current needs of the population for various types of medical care, including radiation diagnostics, is the morbidity of the population. Incidence growth rate from 2003 to 2013. in Uzbekistan as a whole amounted to 15.0%. In the structure of the general morbidity of the entire population in 2013, respiratory diseases took first place (24.2%), diseases of the circulatory system came in second (14.2%), and diseases of the musculoskeletal system and connective tissue came in third (8, 3%). The contribution of radiation diagnostics to the identification of these groups of diseases, respectively, and the planning of their treatment with the assessment of its results is significant. According to WHO, today more than 80% of all diagnoses in the world are made using radiation methods [17,22,28].

The productivity of radiation diagnostics in Uzbekistan is insufficient, especially at the outpatient level: 70% of the volume of activity of service units in inpatient institutions is associated with duplication of outpatient studies or examination of patients from the "zero cycle". Leading medical

organizations, as a rule, carry out the bulk of diagnostic care, although they contain no more than 40% of the staff and radiological diagnostic facilities of the administrative territory [22].

With the increase in the number of high-tech methods and techniques of radiation diagnostics, the ineffectiveness of traditional approaches to organizing diagnostic radiation studies becomes obvious. The previously dominant principle of sequential advancement in radiation diagnostics from the simplest technique to a more complex, expensive or difficult to access one has changed. Today, to obtain the fastest and most effective results, the choice is the most effective, albeit expensive, method [29]. Despite the positive changes, the total share of high-tech methods (CT and MRI) in the overall structure of radiological research in Uzbekistan does not exceed 5%, while in developed foreign countries this figure is, on average, twice as high [22].

Today, medical organizations in Uzbekistan have more than 35 thousand units of radiation equipment [10,12]. In 2013, regional healthcare modernization programs started in 2011 were completed, for which more than 664 billion soums were allocated. In total, during the implementation of the programs, more than 700 magnetic resonance and computed tomography scanners, more than 6.5 thousand units of X-ray and angiographic equipment were purchased and installed. Thus, the fleet of tomography equipment has increased over the past two years by 25%. The fleet of fluorographic installations has been updated. Fluorographic studies are performed mainly on digital installations (2005 - 18.9%, 2013 - 78.6%).

Events of recent years have been the opening of positron emission tomography centers combined with computed tomography (PET/CT), which make it possible to quantitatively and with high sensitivity recognize pathology at the so-called “zero” stage [6]. The use of PET/CT, for example, in oncology practice, allows in 60% of cases to change the stage of the disease and adjust treatment tactics [25]. In Uzbekistan, with a population of about 37 million people, there are currently only 4 positron emission tomography (PET) centers operating. Given that one PET scan should account for no more than 1 million of the population, in Uzbekistan the need for this type of research is met by only 10-12% [5,25].

Currently, the radiation diagnostics service is divided according to a technological principle: some doctors are engaged in traditional x-ray diagnostics, another – ultrasound diagnostics, the third performs the functions of doctors in CT, MRI, PET rooms; radiologists involved in radionuclide diagnostics are united within one specialty with specialists in the field of radiation therapy. Such assignment of specialists to a particular device or technology leads to a widespread decrease in the qualifications of doctors and an artificial increase in the volume of research. Ignorance of the general principles of radiation diagnostics and lack of understanding of the capabilities of alternative methods, endless duplication of diagnostic procedures, an increase in their absolute number in the absence of real acceleration of the diagnostic process are widespread [22,29].

There are very large discrepancies in the quality of radiological results across the country. Large cities have modern equipment and high-tech medical image processing systems, but small towns still lack not only technology, but also personnel, although staff “hunger” is a common problem in radiation diagnostics over recent years [11,21,27,29].

The staffing of medical organizations with radiologists in Uzbekistan is 54% [29]. According to Uzstat, as of January 1, 2014, the number of radiology specialists was about 25 thousand (14 thousand radiologists and 11 thousand ultrasound doctors). Thus, there is one radiology doctor per 5.7 thousand population.

A shortage of specialists is observed not only in the regions, but also in large regional centers. The disproportionate ratio of radiologists in hospitals and outpatient clinics also deserves attention. Today in Uzbekistan it is 2.3:1 [18.23].

A serious problem in staffing the radiation service is the large number of doctors of retirement age (more than 30%) [1,22].

The system of primary professional training of radiologists in Uzbekistan needs to be modernized [7,8,11,15,16]. The annual replenishment of the radiology service with specialists, which should be 2-3% of its personnel (500-600 specialists annually), is not carried out [22]. Curricula for the specialty of radiology require revision.

The system of additional professional education in the field of radiation diagnostics is also not perfect. The main problems are the low level of primary professional training, the technological principle of professional training (traditional radiology, mammography, CT, MRI, ultrasound, etc.), the orientation of educational institutions towards cycles of general improvement and, accordingly, the weak development of thematic improvement, lack of communication with professional communities [7,11].

The solution to organizational and personnel problems in radiation diagnostics should primarily be based on the formation of economic management levers. Every year, the number of radiation examinations in Uzbekistan increases by approximately 10%, but this does not in any way affect the workload standards and principles of remuneration [29,30]. There is a need for change. Perhaps, in connection with the implementation of a program for gradual improvement of the remuneration system in state (municipal) institutions for 2012 - 2018, the situation will change for the better [9].

Thus, despite the fact that in recent years the radiology service has successfully solved a number of problems that affect the availability and quality of services provided: improving the material and technical base, active introduction of new technologies, the problem of staffing remains one of the main ones, even if the situation persists at the same level, in the near future it may acquire the scale of pronounced personnel problems. Radical changes are required in the system of organizing radiation diagnostics and training specialists at the modern level.

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