TO THE CHAIRMAN OF THE SCIENTIFIC JURY
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REVIEW

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Subject: dissertation work for awarding PhD degree in professional field 7.1. "Medicine" in the scientific specialty "Social Medicine and Health Management".

Author of the dissertation: Dr. Atanas Radinoff Radinoff, PhD candidate of self-study training at NCPHA in the scientific specialty "Social Medicine and Health Management".

Topic of the dissertation: "Organization and management of the elimination of the consequences of radiation contamination of the population as a result of a terrorist act and other radiation incidents."

Dr. Radinoff has three specialties: Aviation Medicine, Internal Medicine and Clinical Hematology.

At the moment he works as Head of the Department of Hematology at the University Hospital "St. Ivan Rilski" Sofia.

As technology advances, the possibility of nuclear accidents increases. Due to their scale, the most famous are / accidents at a number of nuclear power plants - Canada / 1952 /, USA / 1955, 1957, 1979 /, Russia / 1957, 1967, 1986 - Chernobyl, the largest in the world - discharged 190 tons of radioactive substances /, Japan - Fukushima / 2011 /.

In addition to nuclear accidents, the ability of various terrorist organizations to use various means and methods to achieve their goals has recently come to the fore. Chemical, biological and nuclear weapons are used. But because the use of real nuclear weapons requires

a huge technical and financial resource, terrorist attacks attack nuclear power plants, or disperse nuclear materials, with external irradiation, internal irradiation, and combined irradiation being damaging factors.

That is why the issues concerning the organization of medical provision in an extreme radiation situation are extremely important. And any scientific research with the creation of appropriate models is an exceptional contribution to the organization of medical care. The dissertation of Dr. Radinoff is extremely relevant. Moreover, there has been very little research in this area recently.

The dissertation is presented on 167 pages, illustrated with 8 tables, 38 figures and 2 annexes. The dissertation submitted for review is extremely topical.

The dissertation is formed in 5 sections, namely:

1. Introduction
2. Aim, tasks, materials and methods
3. Results and discussion
4. Conclusions, recommendations, contributions, main conclusion
5. Publications related to the dissertation

The literature review allows a correct assessment of the current situation, namely: no algorithm has been developed for action in the event of "unexpected damage of large groups of people, in areas directly involved in nuclear installations or protection against nuclear weapons.

As a result of the literature review, the aim is formed, namely: to create an algorithm of organizational behavior regarding the provision of first aid in disorders of the hematopoietic system caused by nuclear pollution.

The tasks are correctly formulated:

-analytical review of certain publications on the topic;

- comparative analysis of the known models of organizational behavior of the involved specialists and structures regarding the provision of first aid; proposal for an algorithm for organizational behavior, implementation of the developed algorithm in the Department of Hematology at the University Hospital "St. Ivan Rilski "in Sofia; formulation of conclusions and recommendations for organizational behavior regarding the provision of first aid in case of dysfunction of the hematopoietic system in case of nuclear pollution.

A wide range of methods is used to achieve the set aim, such as observation, analysis, expert evaluations, tests of working hypotheses, etc. It is extremely important that the scope of the study includes all radiation-induced damage to the hematopoietic system.

An in-depth analysis of the organization and management of emergency medical care in case of nuclear pollution has been made. The crisis management scheme is outlined according to the normative documents of the Republic of Bulgaria. There is an emergency plan, according to which the Council of Ministers implements the general guidance for the protection of the population. The main contractor is the Ministry of Interior with its General Directorate "Fire Safety and Protection of the Population".

The role of the National Center for Radiobiology and Radiation Protection is also outlined.

The tasks of the Minister of Health are specific; he determines health standards, carries out radiation control, monitoring of irradiated persons, supply of preventive and curative means, etc., namely:

- determines health norms for protection of the population and the persons participating in rescue and emergency recovery work in case of an accident;
- develops a long-term forecast for the possible radiation consequences, assesses the radiation risk and proposes preventive measures for protection of the population;
- manages the decontamination of the injured persons entering the medical establishments;
- ensuring continuous and constant management, organization and coordination of the activities for medical provision of the persons affected by the accident.

Medical provision includes the providing of medical assistance by specialized medical teams from health and medical institutions. It is based on the development of emergency plans, including the type of ionizing radiation, type of radiation accident, number of those affected and their accommodation in the respective medical institutions.

The role of the emergency departments at the hospitals, the centers for emergency medical care is emphasized.

The professional medical care is provided in Lom, Montana, Vratsa, and specialized medical care - MHACEM Pirogov; Military Medical Academy; UMHAT "Alexandrovska", UMHAT - Pleven; NCTH.

A great merit of the PhD candidate is the developed questionnaire for assessing the readiness of doctors in hospitals to provide medical care in case of radiation infection. The study is representative and includes 28 hematologists, 25 surgeons, 25 GPs, 31 oncologists.

The results of the survey, unfortunately, show the real picture of the readiness of the medical staff. This is with regard to physicians, who in principle should have certain knowledge

/ hematologists, oncologists, surgeons / i.e. there is no preparedness, no algorithm, no necessary means, despite the known psychological resilience.

Another significant contribution is the proposed algorithm for "organization and management" of work processes in the Department of Hematology at the University Hospital "St. Ivan Rilski" in Sofia. This is a significant contribution to the possibilities for hospital treatment in case of radiation emergency or nuclear terrorism. It is possible to create a reception-sorting post, if necessary, perform decontamination without interfering with the flow of patients. A scheme for triage of victims depending on the severity of the defeat is proposed. If necessary, it can be counted on 50-70 hospital beds.

A detailed protocol for the action of the medical provision teams in the event of a nuclear accident is presented. The treatment of contaminated wounds as well as the decontamination of body openings is described in detail. The recommended treatment of victims with hematopoietic syndrome is described.

In 70-90% of cases, a psychotic reaction develops in an extreme situation, which implies continuous provision of psychological support. The possible approaches are described, as well as the determination of the target groups depending on age, health condition and the need for psychological help. The importance of informing the population, which reduces mental pressure, is emphasized. Based on the research, the author draws a number of conclusions, the most important of which are:

- the medical management of irradiated patients is complex multidisciplinary process and requires many resources;
- the main responsibility lies with the hospital staff;
- determining adequate treatment of hematopoietic patients, etc.

I agree with the contributions of the dissertation. The created algorithm for the organizational behavior of the specialists engaged in provision of the first aid in case of sudden disturbances in the functioning of the hematopoietic system of large groups of people caused by nuclear pollution is especially important. Moreover - in the Emergency Plan of the Republic of Bulgaria University Hospital "St. Ivan Rilski" is not included. On the basis of this study, with the consent of the Hospital Management, it can be added to the National Disaster Protection Plan Part III External Emergency Plan of Kozloduy NPP, for which a proposal should be submitted to the Ministry of Health.

I believe that the results of the dissertation work would need to be presented to the Ministry of Health, the Ministry of Interior and the Municipality of Sofia, which would help optimize their activities.

Conclusion:

Based on the indisputable scientific and scientifically applied contributions of the dissertation, I allow myself to propose to the respected members of the scientific jury to award Dr. Atanas Radinoff Radinoff the PhD degree in professional field 7.1. "Medicine" in the scientific specialty "Social Medicine and Health Management".

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