

OPINION

From: Assoc. Prof. Valeri Lubenov Gelev, PhD

Head of Clinic of Cardiology

of „ Acibadem City Clinic UMHAT Tokuda “ Sofia

of dissertation paper for acquisition of the educational and scientific degree "PhD", in the field of higher education 7. Health care and sports, professional direction 7.1. Medicine, PhD Program "Internal Medicine".

Author: Parvoleta Krasteva Yakova-Krasteva

Form of doctoral programme: PhD student on independent training

Research unit: Clinic of Internal Medicine

Subject: "The place and role of an emergency department of a multidisciplinary hospital for active treatment in the implementation of a diagnostic-therapeutic algorithm in patients over 18 years of age infected with SARS-CoV-2 virus during a pandemic"

Scientific supervisor: Prof. Dr. Milena Staneva Staneva, PhD

1. General presentation of the procedure and the PhD student

The dissertation was discussed and proposed for defense by an extended Scientific Collegium of the Clinic of Internal Medicine at Acibadem City Clinic UMHAT Tokuda EAD. At a meeting of the Scientific Council of Acibadem City Clinic UMHAT Tokuda EAD (Minutes 48/20.09.2023) and by Order No. 15-05-93/26.09.2023 of the Executive Director and the Prosecutor of the Hospital, I have been appointed an internal member of the Scientific Jury in connection with the dissertation of Dr. Parvoleta Krasteva. I am determined to submit an Opinion. No deficiencies were found in the documentation submitted by Dr. Krasteva, the requirements of LDASRB, RILDASRB and the Rules for the terms and procedure for acquisition of scientific degrees and holding of academic positions in Acibadem City Clinic UMHAT Tokuda EAD. No plagiarism was detected from the submitted StrikePlagiarism.com Metadata reference.

I declare that I have no conflict of interest with the author of the thesis.

Dr. Parvoleta Krasteva graduated in medicine from Medical University Sofia in 1996. From 1997 to 2006 she was a doctor in Emergency Medicine at Medical University in Sofia, after which he was a doctor in the Emergency Department MHAT Tokuda Sofia, and from 30.03.2017 until the present moment is Head of the Emergency Department of Acibadem City Clinic UMHAT Tokuda EAD. In 2005 Dr. Krasteva acquired a specialty in Emergency Medicine at the Medical University Sofia and a Professional Qualification in Health Management from the European College of Economics and Management - Plovdiv. She has specialized in Emergency Medicine in Bulgaria and abroad.

2. Relevance of the topic

The COVID-19 pandemic is a scientific, medical and social challenge. The avalanche-like spread of the coronavirus and the increasing number of infected patients in Bulgaria, especially in Sofia, necessitated a restructuring of the hospital medical care and in particular

of the Emergency Department (ED) as a structure of the UMHAT to identify patients with COVID-19 and separate them from other patients in the ED who sought medical care for other socially significant diseases. The analysis of risk factors influencing the course of the infectious disease and the mortality rate, as well as the prognosis in the course of the disease in patients with COVID-19 would serve to improve our knowledge regarding prevention and treatment, as well as to reduce the mortality rate and improve the long-term prognosis after COVID-19. The topic is topical, important and interesting from a practical point of view.

3. Knowledge of the problem

The PhD student knows the state of the problem and evaluates the literature creatively.

4. Methodology of the study

The chosen research methodology allows to achieve the set goal and to obtain an adequate answer to the problems solved in the dissertation.

5. Characteristics and evaluation of the thesis and contributions

The dissertation is written in 171 standard pages, contains 4 annexes and is illustrated with 31 tables and 23 figures. It is structured as follows: Abbreviations used - 4 pages; Introduction - 3 pages; Literature review - 30 pages; Aim and objectives - 1 page; Materials and methods - 9 pages; Own results - 52 pages; Discussion - 35 pages; Conclusions - 3 pages; Appendices - 9 pages; Bibliography - 20 pages. The bibliographic reference contains 273 references, 18 of them by Bulgarian authors, 14 in Cyrillic and 4 in Latin. There are 255 foreign authors.

In the introduction the problem is well formulated and the aim of the thesis is justified.

The literature review is well structured according to the topic under development. It is written competently, comprehensively and shows a good knowledge of the problem in its various aspects. The importance of risk factors and comorbidities and their relevance to the more severe course of the disease are discussed. Particular attention is paid to clinical variables for predicting the severity of the course of COVID19 and the importance of laboratory and radiological diagnosis. Vaccination as a factor influencing the severity of course and survival in COVID-19 is discussed. The length and content of the chapter demonstrate that the PhD student has a thorough understanding of the issues, the findings from the literature review provide a sound rationale for undertaking the subsequent study of their own.

Based on the literature review, the purpose of the research paper is well formulated. The present work aims to identify early prognostic factors affecting morbidity and survival of patients infected with SARS-CoV-2 in order to develop a sufficiently effective, easily accessible and rapid algorithm for primary clinical assessment of patients in the Emergency Department, which could also serve in other diseases with epidemic potential to spread.

The set tasks, 4 in total, are quite sufficient and are fully realized in the thesis.

The „Materials and Methods“ section details the follow-up of 1256 patients with COVID-19 over the age of 18 years seen in the Emergency Department between March 11, 2020 and November 30, 2021. The study is retrospective, based on an electronic database. The methodology describes in detail the qualitative and quantitative parameters analysed, such as risk factors for complications, need for hospitalization, disease progression and death, using different methods. For statistical processing of the data was used specialized statistical package SPSS (Statistical Package for the Social Sciences) version 22.0, which guarantees

the reliability of the results obtained. The structure of the Emergency Department in a multidisciplinary hospital, the possibilities of structural reconstruction and the peculiarities of medical triage in the conditions of a pandemic emergency were analyzed.

6. Results and Discussion:

The results presented are convincing and clear. Indicators are derived from the primary examination of patients in the Emergency Department that can be used as prognostic factors for the evolution of COVID-19. Based on these indicators, 8 algorithms for the management of coronavirus infection in the emergency department of a multidisciplinary hospital were developed and applied to 6280 patients aged 18 to 98 years, of whom 3355 (53.42%) were referred for home outpatient treatment and 2925 (46.58%) were hospitalized. A modified algorithm for general management of suspected infectious disease in the emergency department of a multidisciplinary hospital is also proposed. The role and place of the emergency department in the general diagnostic and therapeutic algorithm in the context of a pandemic is defined.

Conclusions and contributions: On the basis of the results obtained, Dr. Krasteva logically draws 9 conclusions, which correspond to the set tasks. The most important of which are: the demographic characteristics of the patients determining a higher risk in COVID-19 are higher age, male sex and the presence of comorbidities; readily available objective indicators with prognostic value from the primary predictor are lower oxygen saturation and higher heart rate; the extent of radiological changes, the presence of lymphopenia and elevated values of d-dimer and inflammatory markers c-reactive protein, lactate dehydrogenase and ferritin; early administration of monoclonal antibodies prevents the development of complications and death; the algorithms developed and applied reduce the gaps in the primary assessment of patients in the Emergency Department, which is the only and main structure in a multidisciplinary hospital for rapid diagnosis and prevention of the spread of the infectious agent. There are 8 contributions - 4 of a scientific-applied and 4 of a scientific-organizational nature.

6. The abstract reflects what is written in the thesis. In accordance with the academic requirements, it presents the contributions and appends a list of publications related to the dissertation.

7. Assessment of publications and personal contribution of the PhD student

The PhD student has submitted 4 publications in national journals and 2 scientific communications at national scientific forums, one of which was published in a journal with IF. In 1 publication and 2 communications Dr. Krasteva is first author and in 1 publication - independent author. This scientific activity is sufficient to show that the PhD student is consistent in her scientific activity and exceeds the national minimum requirements for the educational and scientific degree "Doctor".

CONCLUSION

The dissertation contains scientifically theoretical, scientifically applied and scientifically organizational original contributions to science, expanding our knowledge in the field of emergency medicine. It is written in a rigorous scientific style. It meets all the requirements of the Academic Staff Development Act in the Republic of Bulgaria, the Implementing Rules ASDARB and the Rules of Acibadem City Clinic UMHAT Tokuda EAD. The submitted materials and dissertation results fully comply with the specific

requirements adopted in connection with the Regulations of the Acibadem City Clinic UMHAT Tokuda EAD for the application of ASDARB.

Dr. Parvoleta Krasteva Yakova - Krasteva is an established clinician, specialist in emergency medicine with many years of experience. As head of the Emergency Department in Acibadem City Clinic UMHAT Tokuda EAD is actively involved in the organisation of the diagnosis and treatment of patients with and without COVID 19 in the context of the pandemic. The dissertation thesis shows that the PhD student possesses in-depth theoretical knowledge and professional skills in the scientific specialty "Internal Diseases", demonstrating qualities and skills for independent scientific research.

Because of the above, I give my *positive evaluation* and I confidently recommend the members of the Scientific Jury to positively evaluate the dissertation "Place and role of the emergency department of a multidisciplinary hospital for active treatment in the implementation of diagnostic - therapeutic algorithm in patients over 18 years of age, infected with the SARS-COV-2 virus during a pandemic" and to award to Dr. Parvoleta Krasteva Yakova - Krasteva the scientific and educational degree "DOCTOR" in the field of Higher Education 7. Health and Sport, professional field 7.1. Medicine, Doctoral Programme "Internal Diseases".

29.10.2023
Sofia

Prepared the opinion:
Assoc. Prof. Valeri Gelev, PhD