

## **STATEMENT OF OPINION**

**by Assoc. Prof. Antoniya Atanasova, MD, PhD**

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By order No 468, dated 17.07.2020, on the grounds of Article 4 of the LDASRB, Article 31 of the RILDASRB, Article 29 of the Rules for Development of the Academic Staff of Acibadem City Clinic Tokuda MHAT EAD and decision of the scientific council (Minutes No. 31/02.06.2020) I was selected to participate in the scientific jury for evaluation of the dissertation paper of Dr. Ani Agop Chavoushian, entitled: "DIVERTICULOSIS AND DIVERTICULAR DISEASE OF THE COLON – PATHOGENETIC MECHANISMS AND CLINICAL ASPECTS" for awarding the scientific and educational degree "Doctor" in the professional field of 7.1. Medicine, scientific specialty "Internal Medicine".

### **General information about the doctoral candidate and the dissertation paper**

Dr. Ani Chavoushian was born on 2.12.1967. She completed her higher education in medicine in 1994 at the Medical University – Sofia. Dr. Ani Chavoushian has acquired two specialties, in 1999 she acquired the specialty “Internal medicine” and in 2003 – the specialty “Gastroenterology”. Throughout the years Dr. Ani Chavoushian continued her professional development undertaking a number of courses for upgrading her professional qualifications, mostly in the field of gastroenterology. She is a member of the BMA, the Bulgarian Society of Gastroenterology, Hepatology, Endoscopy and US in medicine, BAUM, ECCO, ESGE, EFSUMB, the IBUS group, the International Group for adoption of the endoscopic DICA score in daily practice.

The professional career of Dr. Ani Chavoushian began in 1995 and her experience enabled her in the elaboration of this research paper to make use of critical review of the diagnostic and therapeutic approaches to patients with diverticulosis and diverticular disease.

The presented dissertation paper has been written in very clear, ordered and good Bulgarian language, demonstrating good knowledge of the subject matter. The layout is excellent and the dissertation paper is in compliance with the requirements. The abstract supplies sufficient detail and reflects in full the essence of the dissertation paper. The dissertation paper comprises 36 pages of literature review with conclusions, 1 page of objective and tasks, 13 pages of materials and methods, 96 pages of results and discussion, 2 pages of conclusions and 25 pages of references. The structure of the dissertation paper is well balanced and meets in full the requirements to this type of scientific work. The text is excellently illustrated with 51 figures and 73 tables.

### **Scientific significance of the chosen subject matter and innovation**

The subject matter of the dissertation paper is quite up-to-date, because diverticulosis and the diverticular disease involve not only an increasing frequency of occurrence, but also higher risk of life-threatening complications, and moreover the disease seems “to become younger”.

The elaboration on such problems makes the dissertation paper a very interesting and a very useful piece of work.

### **Substance and structure of the dissertation paper**

**Literature review.** The literature review is well structured, comprehensive and in-depth. The dissertation has 314 associated sources of literature, of them 16 in Bulgarian. The number of references goes beyond the usual requirements and demonstrates the scope of scientific inquiry and the knowledge of the candidate. The literature review ends with clearly formulated problems incorporated as some of the tasks of this work.

**Objective and tasks.** The objective is clearly formulated and presents the essence of the work. It emphasizes the identification of risk factors, pathogenetic mechanisms, clinical characteristics and some social and economic aspects of diverticulosis and diverticular disease in view of putting forward a diagnostic and therapeutic algorithm of behaviour. Six tasks have been formulated for the purpose of implementation of the objective, investigating the various aspects of the disease. The tasks ensue from the objective set and are logical and feasible.

**Material and methods, design of the research.** The research is retrospective, whereas Dr. Ani Chavoushian has covered a period of 6 years (2013-2018), with analysis of data for 453 patients with diverticulosis and diverticular disease, examined and treated at the Department of Internal Medicine – Gastroenterology, City Clinic Cardiology Center, Clinic of Gastroenterology (CGE), Acibadem City clinic Mladost, Sofia. The survey of patients involves 53 variables, grouped in eight major panels. The methods are well selected and intended to elucidate the various aspects of the problem in consideration, as well as its development in the course of time. The methods employed correspond to the objective and tasks set.

**Results and discussion.** The well selected methods and groups of patients have enabled the generation of conclusive results, which comprise inquiry by:

- Gender and age;
- Localization and characteristics of diverticula;
- Risk factors and pathogenetic mechanisms;
- Diagnostic methods;
- Clinical manifestations;
- Diseases associated with diverticulosis and diverticular disease.

In another section Dr. Ani Chavoushian outlines the social and economic aspects of the diverticular disease in Bulgaria.

Analyzed in this way, the results and the discussion correlate to the majority of the problems set forth by Dr. Ani Chavoushian following the review of the literature on the subject matter of the research.

**The conclusions** of Dr. Ani Chavoushian correlate to the tasks set. They outline benchmarks for application in practice of the obtained results for planning and changes in the care for cases of diverticulosis and diverticular disease. The most significant conclusions are related to the outlined risk factors associated with diverticulosis and diverticular disease, as well as the identification of diagnostic markers for the diseases.

**The major scientific contributions** of Dr. Ani Chavoushian comprise six contributions, where the most important are:

- Elucidation of the genetic predisposition to diverticular disease investigation of the SNP rs7848647 in the TNFSF15 gene – an original scientific, practical and theoretical contribution;
- Establishment of a diagnostic and therapeutic algorithm for diverticulosis and diverticular disease – an original scientific and practical contribution.

All these contributions are products of the personal effort of Dr. Ani Chavoushian and they shall be of importance for future activities related to the diagnostics and therapy of diverticulosis and diverticular disease, whereas Dr. Ani Chavoushian stands out as one of the few established researchers in this country in the field of modern diagnostics and treatment of these diseases.

Furthermore, Dr. Ani Chavoushian makes five recommendations intended for unification of the terminology, guidelines for future research of genetic factors associated with the development of diverticulosis and diverticular disease, as well as guidelines for modern diagnostics and treatment, and maintenance of an information gateway for the needs of general practitioners.

### **Presentation and clarity of the dissertation paper**

- Style and presentation of the dissertation paper: the dissertation paper has been written in excellent Bulgarian language. The presentation of the work is comprehensible to the reader and allows for navigation to tables, figures and references cited in the text. Chapters, sections and paragraphs have been precisely numbered.
- Integration and cohesiveness – the individual parts of the dissertation are logically and meaningfully bonded. The review, the tasks, the results and the discussion have similar arrangement and thus they follow naturally in the course of reading.
- Credibility – (novelty, authenticity) and creativity – the research and the thesis are the doctoral candidate's own elaboration.

### **Associated publications**

This dissertation has 3 associated publications in Bulgarian magazines and one publication in an international magazine. In addition, there are 2 participations in international conferences. Dr. Ani Chavoushian is the first author of four publications and one international participation.

## **Conclusion**

This dissertation paper presents an original, in-depth and very successful research, characterizing some of the most important aspects of diagnostic and therapeutic behaviour in respect of diverticulosis and diverticular disease in Bulgaria. It is in compliance with the criteria for a dissertation paper for acquiring the educational and scientific degree “Doctor” and proves the ability of Dr. Ani Chavoushian to formulate a research objective, to set the relevant tasks and to attain them in a brilliant way.

I strongly recommend to the scientific panel to vote “YES” for awarding the scientific and research degree “Doctor” to Dr. Ani Chavoushian.

19.08.2020  
Varna

Member of the scientific jury:   
Assoc. Prof. Antoniya Atanasova, MD, PhD