

## Report

By Assoc.Prof. Maria Dencheva, PhD,

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**Subject:** Procedure for defense of a dissertation of Dr. Alexander Ivanov Georgiev entitled "Influence of cardiovascular disease and diabetes on dental treatment" with supervisor Assoc. Prof. Dr. Miglena Balcheva-Eneva, PhD for the awarding of educational and scientific degree "Doctor of Philosophy" in the field of "Therapeutic Dentistry".

The presented set of materials for the Procedure for acquiring of educational and scientific degree "PhD" of Dr. Alexander Ivanov Georgiev is in accordance with the Regulations of MU-Varna on the terms and conditions for acquiring scientific degrees and holding academic positions.

It is clear from Dr. Georgiev's autobiography that he speaks English and German. In 2019 he acquired a degree in Oral Surgery.

### **General presentation and structure of the dissertation**

The dissertation "Influence of cardiovascular disease and diabetes on dental treatment" has a volume of 171 pages, is illustrated with 46 tables, 27 figures and 4 appendices. The bibliography includes 4 sources in Cyrillic and 168 in Latin, 70 of which are from the last 10 years.

The choice of the topic of the present dissertation is a step in the development of the specialty Oral Pathology. This is a border area in dentistry, which can fully meet the needs of dental treatment and prevention among patients with socially significant diseases such as diabetes and hypertension. Unfortunately, such patients are common in daily dental practice. They are burdened both by the disease itself and by medications and their side effects.

In the literature review Dr. Alexander Georgiev researches in detail the latest data on the prevalence of these two diseases and how they affect various dental procedures. The groups of drugs used in cardiovascular diseases like anticoagulants, antiagregants, aspirin, low molecular weight heparin and their influence on some surgical dental procedures are examined. The world experience is studied and shared. Based on missing data and contradictions in some of the guidelines for dental manipulations in these groups, Dr. Georgiev defines the purpose of the presented dissertation.

The goal to study " Influence of cardiovascular diseases and diabetes on dental treatment " is clearly formulated and its implementation has been achieved by formulating of four tasks.

The total number of patients was 42, divided into three groups according to the tasks - a group of patients with diabetes, hypertension and a control group in the age range from 18 to 89 years. All participants underwent X-ray examinations, blood tests with blood sugar measurement, AST,

ALT, leukocytes, platelets, hematocrit, INR and various invasive dental procedures with small surgical volume.

**The results of the first task** "Building a profile of the patient in need of invasive dental treatment in terms of age, sex and clinical health" show that the number of men and women who need invasive dental treatment is approximately the same. At least 2/3 of these patients have one or more comorbidities in the 45-59 age group. In both men and women, there is a tendency to increase blood sugar levels in age groups.

**The results of the second task:** To study the success of invasive treatment in healthy patients show that 26.5% of the total manipulations on the task are related to the placement of dental implants, and 73.5% with other invasive manipulations. There is a 100% success rate in implant treatment and 96.7% in other invasive procedures, which is mainly explained by the health profile of this group, confirmed by blood tests.

**The results of the third task** "To study the success of invasive treatment in patients with CVD and anticoagulant / antiplatelet therapy or anticoagulant / antiplatelet therapy" show that in these patients no case of severe postoperative bleeding requiring additional wound treatment was found. The success rate for implant placement is 96.8% - 97.1% for men and 94.8% for women. The overall success rate in performing surgical procedures is 95.87% - 96.4% in men and 93.8% in women. These patients have normal values of leukocytes, platelets, AST, ALT, hemoglobin and erythrocytes. Slightly elevated blood sugar levels were observed compared to the control group of patients, but without statistical significance.

According to Dr. Georgiev, the assessment of the risk of bleeding and blood clot formation, respectively, should be done with specific blood tests. There is no universal indicator measure the condition of the blood clotting system, so an opinion has been expressed on the treatment of these patients, which are divided into those taking Aspirin, direct and indirect anticoagulants and patients at high risk of thromboembolism.

**The results of the fourth task** "To study the success of invasive treatment in patients with diabetes" show that in patients with good and moderately good glycemic control no case of severe postoperative inflammation was found, which correlates with elevated blood sugar levels and that with good preparation and adherence to modern surgical protocols, surgical treatment of diabetics can be predictable.

The contributions of the dissertation are indisputable. I consider as extremely important the contributions of a practical significance, with which every general practitioner who has read the dissertation can comply and would feel much safer if there are questions related to the treatment of patients with type 2 diabetes and patients with cardiovascular diseases. Of course, the entry of such scientific research in everyday dental practice is very difficult and I suggest that in order to

facilitate access to this information Dr. Georgiev could promote his dissertation results and the algorithms for his work.

The abstract of Dr. Alexander Georgiev is prepared according to the requirements in sufficient volume and adequately reflects the main results of the dissertation. The six contributions listed are of indisputable scientific and practical significance, but as the ones with the greatest personal contribution I would define the proposed protocols for treatment by invasive dental manipulations of patients with cardiovascular diseases and antithrombotic or anticoagulant therapy and for treatment by invasive dental manipulations of patients with type 2 diabetes.

In connection with the development of the dissertation, two participations in scientific forums and three scientific publications were realized, which cover the required minimum. No reference to the citation is attached.

As an insufficiently researched question in the dissertation I would like to point out the influence of the duration of taking the specific drugs in the groups on the organism and the performed surgical interventions. Of course, this fact does not diminish the scientific work of Dr. Georgiev, but only offers a starting point for his next scientific research related to patients with cardiovascular disease and type 2 diabetes.

### **Conclusion**

Dr. Alexander Ivanov Georgiev analyzes in depth the topic he has set, focusing his conclusions not only on the scientific aspect, but also on the practical benefits and daily approach of the dentist to patients with such common diseases as type 2 diabetes and cardiovascular diseases.

Over the years, the problem of patients' oral health and the two-way relationship with their general health status has not ceased to excite a certain part of the academic dental guild in Bulgaria. In this sense, I accept Dr. Georgiev as a supporter and follower of the trend in dental medicine, which goes beyond routine dentistry and focuses on the general medical view of patients.

The dissertation proves that the doctoral student Dr. Alexander Georgiev has in-depth theoretical knowledge by demonstrating qualities and professional skills for independent research.

The presented dissertation "Influence of cardiovascular diseases and diabetes on dental treatment" meet the requirements of the Law for Development of the academic staff in the Republic of Bulgaria, the Regulations for its implementation and the Regulations of MU - Varna.

Based on the above, I give my positive assessment for the award of the scientific and educational degree "Doctor of Philosophy" to Dr. Alexander Georgiev in the scientific specialty "Therapeutic Dentistry".

16.05. 2022

Sofia

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(Assoc. Prof. Dr. Maria Dencheva, MD)

