

REVIEW

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Regarding the dissertation thesis entitled: **“Pathology of the Coronary Arteries in Patients with Peri-implantitis”**, submitted for the award of the educational and scientific degree “PhD” by Dr. Velislava Deyanova Slavova, PhD student at the Department of Periodontology and Dental Implantology, Faculty of Dental Medicine, Medical University – Varna.

Scientific supervisor: Prof. Stefan Vasilev Peev, DSc

I. General Characteristics and Relevance of the Topic

The dissertation presented for review is a contemporary scientific study dedicated to a highly relevant and socially significant problem – the relationship between peri-implant inflammatory diseases and coronary artery pathology

Dental implantology is a leading dental specialty providing effective and long-lasting rehabilitation for patients with partial or complete edentulism. With the increasing number of implants placed in daily practice, the frequency of complications also rises. Peri-implant inflammatory diseases – peri-implant mucositis and peri-implantitis – are considered among the most serious late biological complications threatening the longevity of implant treatment. Modern research increasingly emphasizes the systemic effects of biological complications, particularly the possible link between peri-implant inflammation and cardiovascular diseases, which remain the leading cause of morbidity and mortality worldwide.

The present dissertation investigates coronary artery pathology in patients with peri-implantitis – a problem situated at the intersection of dental medicine and cardiology, with great theoretical, clinical, and social significance. The study is highly relevant, as it seeks to answer whether and how local inflammatory processes in the oral cavity may contribute to systemic diseases; it provides a new perspective on the role of peri-implant pathogens as potential risk factors for coronary stenosis; and it creates prerequisites for closer collaboration between dentists and cardiologists in comprehensive patient care.

II. Structure and Volume of the Dissertation

The dissertation is written on 121 pages and contains 10 figures, 60 tables, and 7 appendices. The bibliography includes 179 references, of which 1 in Cyrillic and 178 in Latin – evidence of in-depth knowledge of international experience and its objective use in building the theoretical and practical framework of the study.

Its structure fully complies with academic standards and includes:

- Introduction
- Aim and Objectives
- Materials and Methods
- Results
- Discussion
- Conclusions and Contributions

The stated aim logically derives from the literature review analysis: **To investigate the role of periodontal pathogens in the etiology of coronary stenosis in patients with dental implants.** The four formulated **objectives** fully correspond to the theme and content of the dissertation. Each objective is sufficiently developed with original research, leading to reliable results and objective conclusions.

The **abstract** corresponds entirely to the dissertation and complies with national academic requirements. The included tables, figures, and diagrams provide sufficient information about the conducted studies and results obtained.

III. Research Methodology

Dr. Velislava Slavova included 96 patients, divided into two main groups – patients with peri-implantitis and patients with chronic periodontitis. All participants underwent clinical and instrumental examinations at University Hospital “St. Marina” – Varna, where selective coronary angiography was performed.

Inclusion criteria:

- presence of dental implants placed at least 12 months earlier;
- clinical and radiographic signs of peri-implantitis;
- diagnosed chronic periodontitis;
- age over 40 years, undergoing selective coronary angiography for clinical indications.

Exclusion criteria:

- severe systemic diseases (outside cardiovascular system) that may affect results;
- acute oral infections;
- refusal to participate or lack of informed consent.

Methods:

- Clinical examination of peri-implant tissues (probing depth, bleeding on probing, clinical attachment loss, suppuration, radiographic assessment).
- Microbiological analysis: PCR detection of *P. gingivalis*, *A. actinomycetemcomitans*, *T. denticola*; frequency and intensity of infection determined.

- Cardiological examination: selective coronary angiography with assessment by SYNTAX Score.
- Comparative analysis: between peri-implantitis and chronic periodontitis patients; relationship between pathogens and coronary stenosis severity.
- Statistical methods: parametric/non-parametric tests, mean values, SD, p-values, correlation analyses.

The methodology is appropriately selected and precisely conducted. The combination of clinical, microbiological, and cardiological methods ensures high reliability of results and enables an interdisciplinary assessment of the problem. The use of the SYNTAX Score is particularly noteworthy, providing an objective quantitative evaluation of coronary changes.

IV. Main Findings and Results

- **Clinical results:** peri-implantitis patients show greater probing depth, clinical attachment loss, and bleeding compared to chronic periodontitis patients, indicating more severe inflammation.
- **Microbiological results:** higher frequency of *P. gingivalis* detected in peri-implantitis; its colonization is significantly associated with severity of inflammation.
- **Cardiological results:** peri-implantitis patients have higher SYNTAX Scores, more frequent multivessel lesions, and more severe involvement of the left anterior descending artery.
- **Comparative analysis:** the relationship between oral pathogens and coronary pathology exists in both groups but is stronger in peri-implantitis.

V. Discussion

The author compares the findings with global literature, emphasizing that oral inflammatory processes may affect systemic health through:

- direct bacteremia and pathogen entry into the bloodstream.
- chronic systemic inflammation with cytokine release accelerating atherosclerosis.

The results confirm that peri-implantitis is not a purely local disease but a potential risk factor for severe cardiovascular incidents.

VI. Scientific and Practical Contributions

Original contributions:

- First clinical study in Bulgaria to investigate peri-implantitis and coronary pathology using SYNTAX Score.
- Parallel comparison with chronic periodontitis patients, highlighting peri-implantitis as a systemic risk factor.
- Statistically significant association between *P. gingivalis* infection and severity of coronary stenosis in peri-implantitis.
- Interdisciplinary risk assessment algorithm proposed for implant patients.
- New data on multivessel lesions in peri-implantitis patients with direct clinical implications.

Confirmatory contributions:

- Confirms association between periodontal pathogens and systemic inflammation described in international literature.
- Supports the concept that chronic oral inflammatory diseases accelerate atherosclerotic changes.
- Reinforces the view that peri-implantitis and chronic periodontitis should be regarded as systemic health risk factors.

VII. Conclusion and Evaluation

The dissertation of Dr. Velislava Deyanova Slavova, entitled “**Pathology of the Coronary Arteries in Patients with Peri-implantitis**”, is an independent, complete, and thorough scientific work with high theoretical and practical value, fully meeting the criteria for awarding the educational and scientific degree “**PhD**”.

I give my overall **positive assessment** of the dissertation and will confidently vote “**YES**” for awarding the educational and scientific degree **PhD** to Dr. Velislava Deyanova Slavova.

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Sofia

Reviewer:

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