



**STATEMENT**

by Professor Dr. Youri Konstantinov Anastassov, Ph.D., Head of the Department of Plastic, Reconstructive and Aesthetic Surgery, MU-Plovdiv

of a dissertation for awarding the educational and scientific degree 'doctor'

professional field ... PROFESSIONAL FIELD, 7.2 DENTISTRY

doctoral program ..... DENTAL IMAGING DIAGNOSTICS.....

Author: Dr. TAMARA PETROVA PETKOVA.....

Form of doctoral studies: full-time training

Department: Department of Imaging, Dental Allergology and Physiotherapy

Topic: "STUDY OF THE DIAGNOSTIC POSSIBILITIES OF MODERN IMAGING METHODS IN PATIENTS WITH CONGENITAL CLEFT LIP AND PALATE"....

Director of Thesis : DOC. Dr. NIKOLAI SIRAKOV, DM, PROF. ILIAN DOYKOV, MD, MD

**1. General presentation of the procedure and the doctoral student**

The presented set of materials are in concordance with Art. 70 (1) of Section I. Acquisition of educational and scientific degree "DOCTOR" and scientific degree "DOCTOR OF SCIENCES" at MU-Plovdiv; Regulations of MU-Plovdiv from 28.01.2021

The dissertation contains 170 standard pages. Illustrated with 63 tables, 91 figures, and 38 appendices. The literary reference includes 168 sources, of which 8 are in Cyrillic. The PhD student has attached 3 publications in our journals and 3 participations in scientific forums.

**2. Relevance of the topic**

The routine introduction of cone beam computed tomography for the diagnosis of bone defects in patients with cleft lip and palate has been a fact for more than 10 years in our country and abroad, and the determination of the indications and degree of informativeness of these studies are completely up-to-date and were not studied in our scientific literature. For this reason, when I found out that this was the topic of Dr. Petkova's dissertation, I was very positive and offered cooperation and referrals to patients we treat. In addition, we included Dr. Petkova in our electronic medical record for facial anomalies so that she could orientate herself about the applied therapy - surgical, orthodontic, speech therapy, and ENT. I expected a good comparison of pre- and post-bone graft studies to be obtained from an analysis of the clinical material to which she had access.

Knowledge of the topic - I cannot make a competent assessment regarding the knowledge of the problem related to imaging diagnostics, since I am not competent there, but from the literature review, I see that

Dr. Petkova has made a comprehensive analysis of the literature on etiology, genetics, and treatment of this pathology. I want to comment on the statement that the cleft palate is operated on in two stages in our country. Our team has treated 90% of patients with clefts for more than 20 years and we operate on primary cleft palate in one stage at 10 months of age.

#### 4. Research methodology

The chosen research methodology allows the achievement of the set goal and obtaining an adequate answer to the tasks solved in the dissertation work. I expected, however, that the tasks set would have a more in-depth analysis related to the results of patients before and after bone transplantation, and not so much the degree of parents' awareness of the benefit or harm of the study.

#### 5. Characterization and evaluation of the dissertation work and contributions

Without being competent in technical characteristics, I believe that a detailed examination of imaging studies is the first step to being able to analyze the results of studies by cone beam computed tomography. The inclusion of the specific areas for analysis and the Free region grow tool is undoubtedly the first condition for data analysis, as well as other clinical characteristics such as the number and position of teeth around the bone defect.

On the first task, the dissertation honors the fact that the indicator of the social status of the parents was not a limiting factor for carrying out this study, since the patients did not pay for this study, but such dependence was sought. Unfortunately, in our country, only surgical treatment is included in the system of clinical pathways, and the inclusion of this X-ray examination in the required set of examinations is a question that must be put through the Health Insurance, and in this sense, this dissertation is a first step. Orthodontic treatment without which it is impossible to successfully achieve bone integrity (with or without bone transplantation) is not reimbursed by the Health Insurance. In practice, the insufficient or completely missing treatment of caries is a major obstacle to the initiation of timely orthodontic treatment and subsequent bone transplantation. In this aspect, we try to educate parents about the main problems for the complete and complex treatment of these patients, highlighting the arguments for optimal terms for bone transplantation 8-10 years of age and the omission of this opportunity in the absence of orthodontic treatment. In our protocol, primary gingivoperiostoplasty is performed along with lip and palate surgery. Thus, in quite a few cases with clinical forms in which the gum is affected and would be candidate for bone transplantation, this turns out to be unnecessary. The assessment could be most accurate by cone beam computed tomography, and therefore this dissertation is of great importance. In this case, all those referred for cone-beam computed tomography were examined without payment, and social status was analyzed only to the extent of determining family awareness of the benefit of this examination. It should be added that performing this examination before bone transplantation is relatively easy to achieve since all are mobilized for surgery and bone placement. It is relatively more difficult to get the patient to do a repeat examination to evaluate the outcome of the bone graft, as this is done at the earliest 6 months after surgery and preferably at the same examination site. I think this explains why there are relatively few before and after studies and it was not possible to follow up and analyze this adequately by Dr. Petkova. Apart from the parents, all of us who have to maintain periodic contact with the patient are to blame for this. The age characteristics, the work-professional characteristics of the studied group, the education of the parents of the studied patients, and the ethnicity of the participants in the study are other areas investigated by Dr. Petkova, and their scientific value is comparatively smaller. Analysis of this sample of patients for accompanying abnormalities, symmetry, gender, etc., is not essential and I do not

find contributing scientific value, but are traditionally required in dissertations of this type. The description of the presence or absence of displacement of the alveolar fragments is interesting, from which it follows that 76.57% of the patients had significant orthodontic problems at the stage of the study. This would further complicate the analysis for the presence of bone and it should be expected that the ideal conditions for bone grafting are not met. Our studies show that our expected early secondary bone grafts (8-10 years old) are significantly less in number than planned and expected (we expected 14 bone graft cases for 2023, and they turned out to be only 4, and the late ones - after 13 years, which are less successful are 16 in number). This again speaks of the insufficient compared to the planned for a given year secondary early (8-10 years), and prevailing secondary late - after 13 years, which is much more than the expected optimal early secondary. This is again due to insufficiently timely orthodontic preparation and again related to the timely treatment of caries. The description related to the nasal deformities is relatively poor to make a connection with the clinical forms, but still an attempt to describe the clinical material. Measurement of cleft volume would be particularly useful if done in comparisons before and after bone grafting. The conclusion that, after bone grafting, the risk in women that the bone structure around the cleft is osteosclerotic, is  $OR=2.500$ , 95% CI 0.830 – 7.532 higher than in men cannot be taken in my opinion as a contribution, since the clinical forms and all other data from the history and status were not analyzed or not at least the classification of the severity of the abnormality described by us. In the third task, an attempt was made to evaluate the success of bone grafting, taking into account differences by gender, and ethnicity, which rather requires another analysis of the reasons for the greater success or failure of this intervention. In all cases, with the available material, what has been done will require a thorough analysis and grading of the results. According to the fourth and fifth tasks, the data on the most used X-ray method and whether they are familiar with the advantages of CBCT have a confirmatory nature for the relatively newer and more informative method of cone-beam computed tomography.

The sixth task is of practical importance and describes an algorithm of behavior for choosing an X-ray method in these patients. I believe that the proposed algorithm has practical significance and is directly related to the topicality of the topic. This is also a contribution to the dissertation. I think that the general conclusions are too many, as well as the recommendations.

Regarding the application in the practice of CBCT, this is the definitive benefit of this dissertation work, and the prospects for development are significant given the need to develop criteria for the success of bone transplantation for different needs - orthodontic treatment or the placement of a dental implant.

#### 6. Evaluation of the publications and personal contribution of the doctoral student

The difficulties in determining the need for bone transplantation in different age periods and the optimal moment for bone transplantation, as well as the degree of bone integration, are at the heart of the problem, which can be the subject of further scientific developments in which Dr. Petkova will take an active role participation. The publications made by the dissertation are relatively modest in number, but they have value considering the lack of such in our literature so far.

#### Abstract

The abstract corresponds to the content of the dissertation and is prepared according to the requirements and reflects the main results achieved in the dissertation.

## CONCLUSION

The dissertation contains scientific, scientific-applied, and applied results, which represent an original contribution to science and meet the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for the Implementation of the Law and the Regulations of the Ministry of Education - Plovdiv. The presented materials and dissertation results fully correspond to the specific requirements adopted in connection with the Regulations of the Ministry of Education - Plovdiv for the application of the Law.

The dissertation shows that the doctoral student Dr. Tamara Petkova ..... has in-depth theoretical knowledge and professional skills in the scientific specialty ..... DENTAL IMAGING DIAGNOSTICS....., by demonstrating qualities and skills for independent conduct of scientific research.

Due to the above, I confidently give my positive assessment of the conducted research, presented by the above-reviewed dissertation work, abstract achieved results, and contributions, and I propose to the honorable scientific jury to award/not award the educational and scientific degree "doctor" to... Dr. Tamara Petkova ... in a doctoral program in ... DENTAL IMAGING DIAGNOSTICS

.6.3..... 2024.... Prepared by ...Professor Dr. Youry Anastassov, PhD

