

## REVIEW

from

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External member of the Medical University - Sofia of the Scientific Jury on the Order № 175/20042021 of the Chairman of the scientific board at National Hospital of Cardiology EAD-Sofia

concerning

dissertation : "Interventional treatment in patients with AMI-Clinical results" for awarding the educational and scientific degree "**Doctor**" in the scientific specialty "Cardiology" (code 03.01.47) to Dr. Iskra Hristova Bayraktarova, assistant at the Clinic of Cardiology, in professional field 7.1. Medicine and Cardiology programe at NHC- EAD - Sofia.

**I have no conflicts of interest .**

The dissertation is written on 162 standard pages and includes 47 figures and 37 tables. The bibliography contains 203 literary sources in Latin.

### **Up to date on the topic**

Primary percutaneous coronary intervention (pPCI) is the reperfusion method of choice in patients with STEMI], as well as in patients with NSTEMI who are subject to urgent or accelerated revascularization, after risk assessment, as described in recent recommendations.

In a significant proportion of patients admitted with acute coronary syndrome - according to various sources, from one to two thirds of all patients during the angiography more than one significant coronary lesion is found. However, compared with patients with one vessel coronary artery disease, patients with multivessel coronary artery disease and especially those with concomitant chronic total occlusion have a worsened long-term prognosis - higher mortality and higher incidence of new non-fatal infarction

The treatment approach in these patients is not completely clear. Recommendations of the European Society of Cardiology -2017 for complete revascularization in patients with multivessel coronary artery disease without cardiogenic shock are based on cohort and retrospective studies, as well as several relatively small randomized trials and are class IIA recommendation. Both the results of the available studies and the meta-analyzes do not definitively answer the questions about the time of complete revascularization; nor do they answer questions about the use of additional methods to assess the significance of established noninfarction coronary lesions.

The information available in the literature suggesting the benefit of full revascularization, clarity on the type and timing of revascularization beyond the "target" lesion remains controversial and depends entirely on the clinician's judgment.

Theoretically, the debate has two sides. On the one hand, the potential benefits include reducing the risk of recurrent ischemia and heart attack by reducing overall ischemic severity and improving overall myocardial function, as well as additional benefits of reduced risk of bleeding and vascular complications (with a single one-step procedure), potentially corresponding to cost-effectiveness . On the other hand, the one-stage procedure is theoretically associated with a significant risk in view of the more difficult assessment of concomitant lesions in STEMI, multiple stenting in conditions of prothrombotic and proinflammatory situation and possibility of acute complications of non-infarction-related procedure (dissection, no-reflow,, higher radiation dose, higher amount of contrast, associated with a higher risk of contrast-induced nephropathy, increased risk during the index hospital stay and increased cost of treatment.

Given the above, I find the topic of this dissertation unquestionably relevant and with great practical potential. It can also be used as a basis for future research

### **Structure of the dissertation**

The dissertation meets the requirements for scientific work. It includes the following parts in the right proportion: literature review - 33 pages, purpose and tasks - 1 page, material and methods - 13 pages, results - 56 pages, discussion - 28 pages, conclusions - 2 pages, contributions - 2 pages. , bibliography - 17 pages and publications related to the dissertation - 3 pages.

### **Knowledge of the problem and scientific formulation**

The literature review is very well structured, detailed and comprehensive. It covers various aspects of the topic:

The potential benefits of complete revascularization, against the potential risks of additional interventions, with or without functional assessment of blood flow, in one or more stages, the rate of procedural complications, including periprocedural stroke, bleeding requiring transfusion or surgery, contrast-induced nephropathy, and mortality.

The results of a large number of publications working in this field are correctly quoted. The conclusions from the literature review are meaningfully formulated and logically argue the purpose and tasks of the dissertation.

The goal is clearly and specifically defined: "Follow up patients with AMI (STEMI or NSTEMI) with optimal medical and interventional treatment in their long-term prognosis by assessing the effect of additional interventional revascularization on survival, mortality, the rate and time to onset of new ischemic events

Fully in accordance with the formulated goal, 7 specific tasks are correctly identified.

The dissertation includes and studied 403 patients with ACS, of which 363 have undergone coronary angiography and interventional treatment. The inclusion and exclusion criteria are clear and meet the purpose and tasks.

The research methods used are modern and meet the goals and objectives set by the dissertation. Follow-up indicators are well formulated and patients are closely monitored

The results of the dissertation are described in detail on 56 standard pages and very well illustrated with figures and tables. They strictly follow the purpose and tasks of the dissertation. The own results are discussed in depth and are compared with published trials .

Statistical methods are suitable for the purposes of the study and allow reliable data to be obtained.

In accordance with the obtained results, 5 contributions were formulated - 1 original and 4 confirmatory, with scientific-theoretical and scientific- practical character. They are derived from the results and the discussion and prove the scientific and clinical-practical value of the work of Dr. Bayraktarova.

### **Contributions:**

1. For the first time in Bulgaria the characteristics of a generalized population of patients with ACS (STEMI and NSTEMI) are studied and described -

demographic and general risk profile, intervention finding and in-hospital results from treatment based on the current European recommendations.

2. For the first time in Bulgaria a detailed comparison of the Bulgarian patients with STEMI and NSTEMI is made on the basis of initial characteristics, conducted complex in-hospital treatment in the acute period and achieved long-term results.

3. For the first time in Bulgaria the standard therapeutic strategy for the invasive treatment of multivessel patients with ACS in a high-volume reference center is described, and the long-term results are compared with the world literature data.

4. For the first time in Bulgaria a comparison is made between baseline characteristics, inpatient treatment in the acute period and long-term outcomes in patients with ACS and one vessel and multivessel coronary artery disease multi-vessel coronary arteri disease, taking into account the effect of interventional revascularization on survival and cardiovascular events. .

5. For the first time in Bulgaria predictors for the long-term survival of Bulgarian patients with ACS are determined.

The abstract is designed according to the requirements and reflects the main results, their discussion, conclusions and scientific contributions of the dissertation.

The required publications on the topic, as well as the participation in scientific forums are correctly quoted.

### **Recommendations**

1. Given the relevance and high scientific value of the dissertation of Dr. Bayraktarova, I recommend data collection and monitoring of patients with ACS and multi-vessel coronary artery disease and therapeutic approach to continue. These data will provide valuable material for studying the differences in risk factors, co-morbidity and prognosis in patients with ACS, multi-vessel disease and achieved revascularization and will contribute more clarity to the questions of when, how and why to revascularize patients with ACS and multivessel coronary artery disease.

### **Conclusion**

The dissertation contains scientific, and scientific-practical results, which represent an original contribution to science and meet all the requirements of the regulations for development of the academic staff in the Republic of Bulgaria and covers specific requirements of National hospital of cardiology " EAD.

Dr. Iskra Hristova Bayraktarova demonstrate research and clinical skills.

Her work confirms it.

Due to the above, I CONVINCEDLY give my POSITIVE assessment of the study, presented by the above peer-reviewed dissertation, abstract, results and contributions, and I suggest to the other members of the jury to award the educational and scientific degree "DOCTOR" to **Dr. Iskra Hristova Bayraktarova**.

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Prepared the review:

prof. Dr. Diana Krumova Trendafilova-Lazarova,