

STANDPOINT

**on behalf of Assoc. Prof. Dr. Nikolay Margaritov Runev, MD,
Cardiology Department at the Clinic of Propaedeutics of Internal Medicine
"Prof. St. Kirkovich "- University Alexandrovska Hospital,
Medical University – Sofia**

Subject: dissertation on the topic:

"Clinical results in interventionally revascularized patients with myocardial infarction"

for the award of an educational and scientific degree "Doctor" in the scientific specialty "Cardiology" (code 03.01.47) to Dr. Iskra Hristova Bayraktarova, assistant in the Department of non-invasive diagnostics of the Cardiology clinic at MHAT "NKB" EAD - Sofia

The dissertation is written on 162 pages, of which 33 - literature review; 16 - purpose, tasks, material and methods; 56 - results, 28 - discussion; 3 - conclusions and contributions; 17 pages - bibliography.

The dissertation is structured in the classical way with compliance of the proportions between its separate parts according to the generally accepted requirements in our country.

Relevance of the topic

The topic of the dissertation is relevant both in theoretical and scientific-practical aspect. I have the following reasons for this statement:

1. Worldwide, coronary heart disease (CHD) is the most common cause of death and its overall incidence increases.

2. Continuous improvement of the strategies for optimal antiplatelet and anticoagulant therapy, as well as revascularization techniques led to a reduction in the in-hospital mortality in acute coronary syndrome (ACS) - STEMI and NSTEMI.

3. However, about a half of patients with ACS have multivessel coronary disease (MVD). These patients are at increased risk not only for cardiovascular morbidity and mortality, but also of death from any cause compared to patients with single vessel coronary disease (SVD). The pathophysiological basis of this increased risk remains unclear.

Knowledge on the topic

The review shows that the author is thoroughly acquainted with the available literature on the subject. I will mention only some of the main conclusions that emerge from the review:

1. The ESC Guidelines highlight the benefits of the complete revascularization in patients with STEMI. On the other hand, the need for an individual benefit/risk assessment, including the severity of concomitant lesions, the risk of contrast-induced nephropathy and the assessment of residual ischemia, is emphasized.

2. Meta-analyses establish that complete delayed revascularization in patients with MVD and ACS results in both reduced 30-day mortality and improved long-term survival compared to revascularization of the infarct-related artery only or complete one-stage revascularization.

3. Discussions continue on the most favorable moment for conducting complete revascularization in patients with MVD and ACS - within days to months after the coronary event.

4. The data in our country show an increasing frequency of planned procedures for staged revascularization of patients with MVD after ACS, but there is no systematic monitoring to assess the effects of this staged treatment on the patients long-term prognosis.

Thus, the author fully justifies the idea of her study.

The formulation of the **purpose and tasks** follows the conclusions of the literature review.

The material and the methods give full grounds to believe in the obtained results.

A total of 403 patients with AMI type I were analyzed, of which 265 (65.8%) with STEMI and 138 (34.2%) - with NSTEMI, treated at the National Heart Hospital - Sofia in the period 2014-2015 (STEMI) and 2013-2016. (NSTEMI). The patients with AMI type II, as well as those with an accepted diagnosis of NSTEMI but no evidence of elevated enzymes or with a final diagnosis of tako-tsubo CMP, were excluded from the study. All patients data (demographic indices, risk factors, interventional findings, in-hospital results of tests and treatment) were collected from the hospital information system of the NCH - Sofia.

The follow-up of the patients was carried out on the basis of completed questionnaires (after a telephone interview) and subsequent documents from hospitalizations and examinations. It includes:

- ✓ early period - 90 days from the date of the primary event (period of delayed planned staged revascularization) and
- ✓ remote period - outpatient follow-up until March 2018 or a fatal event occurrence.

The patients were followed-up for new ischemic events, as well as the period until their occurrence, in days:

- new hospitalization due to ACS (accepted as diagnosis at discharge),

- a new invasive emergency evaluation,
- new revascularization and total number of revascularizations performed up to the end of the follow-up,
- a new ischemic stroke,
- death for any reason.

A modern statistical analysis of the results has been done using the statistical package SPSS 22.0. The data are presented as mean values \pm standard deviation for quantitative variables and as absolute number and relative share for categorical variables. The Kolmogorov-Smirnov method is applied to estimate the distribution. The t-test and the Wilcoxon test depending on the shape of the distribution are used to compare the mean values of the related samples. The survival analysis is performed using the Kaplan–Meier method, and the individual groups are compared with the Log-Rank (Mantel-Cox) test. Cox regression analysis is used to determine the prognostic factors for better survival. Statistical significance is assumed at $p < 0.05$.

Characteristics of the results and the discussion

The most important results in my opinion are the following:

1. In the studied high-risk Bulgarian population with STEMI and NSTEMI, a significantly higher frequency of registered new ischemic events and death was found for the follow-up period compared to this one established in randomized clinical trials.
2. A high degree of adherence to the ESC Guidelines for the treatment of ACS during the in-hospital stay of the studied patients is established.
3. A small proportion of patients with MVD have been referred for planned staged complete revascularization despite of the lack of systemic limitations. The decision for a long-term therapeutic approach is made during the primary coronary procedure by the interventional cardiologist and is not discussed afterwards.
4. The strategy for complete staged revascularization within 3 months after the index event is effective and safe.
5. The patients with the highest CV risk are relatively less likely to have full staged interventional revascularization, although they would benefit most.
6. The patients with MVD and complete revascularization have:
 - long-term prognosis comparable to that of patients with SVD in terms of frequency of new ischemic events and death for any reason;
 - significantly better prognosis than patients with MVD and incomplete revascularization.
7. A regression model with a high predictive value for increased risk of death in follow-up of patients with ACS has been developed, including the following parameters: age, presence of cerebro-vascular disease, AF during the current

stay, left main stenosis or CTO, deterioration of the Killip class, conducting dialysis and the presence of incomplete revascularization until the 90th day.

The results are appropriately illustrated with 33 tables and 5 figures.

I agree with the report on the conclusions and contributions of the dissertation.

Conclusion:

In my opinion, especially valuable are the data obtained from the conducted for the first time in our country:

(1) comparative analysis of patients with STEMI or NSTEMI in terms of: demographic characteristics, risk profile, complex in-hospital therapy in the acute period and long-term results achieved;

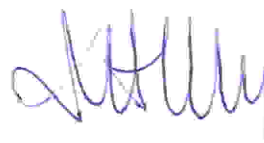
(2) comparative evaluation of ACS patients with SVD versus MVD, examining the effect of the achieved degree of interventional revascularization on cardiovascular events and mortality;

(3) analysis of the main factors predicting the long-term survival of Bulgarian patients with ACS.

This gives me grounds **to vote in favor** of the award of an educational and scientific degree "Doctor" in the scientific specialty 03.01.47 "Cardiology" to Dr. Iskra Hristova Bayraktarova - assistant in the Department of non-invasive diagnostics of the Cardiology clinic at MHAT "NKB" EAD - Sofia.

29.04.2021

Signature:



Assoc. Prof. N. Runev