



ANGIOGRAPHIC VARIABLES WITH PROGNOSTIC SIGNIFICANCE IN STEMI PATIENTS

K. Karamfiloff¹, Zh. Stoykova¹, P. Georeva², D. Zlatareva³, D. Trendafilova¹, J. Jorgova¹

¹University Hospital “St. Ekaterina”, Sofia, Bulgaria

²Trudova medicina OOD

³Department of Diagnostic Imaging, Medical University, Sofia, Bulgaria

ABSTRACT

PURPOSE: The main objective of this analysis is to define the influence of various angiographic characteristics as: left main (LM) involvement, ostial localization of the acute plaque, presence of Calcium on mortality rates in STEMI patients. **METHODS:** We retrospectively included 549 patients, hospitalized with STEMI in UH “Saint Ekaterina” (age 62.66± 12.56 y, women 31.3%) from 1.06.2008 to 30.06.2011. The distribution of the key angiographic characteristics was: LM stenosis (>30) in 2% (11pts); ostial lesion in 6,3% (33pts); presence of Ca in 7% (37pts). Stent was implanted in 91,8% (484pts), GP IIb/IIIa was used in 75,9% (400pts) and IABP in 5,1% (27pts). **RESULTS:** There was significant increase in mortality rates in patients with LM stenosis >30 % (33,3% vs 9,5%, p<=0,001); with Ca++ on target lesion (10,2% vs. 29,7%, p<= 0,01), ostial localization of the lesions and presence of thrombus was not associated with deterioration of the prognosis in these patients. **CONCLUSION:** Various angiographic characteristics are associated with higher mortality rates in STEMI patients, which may further alter clinical course and decision making.

Key words: STEMI, mortality, LM, ostial lesion, thrombus, Ca

INTRODUCTION

Worldwide, coronary artery disease (CAD) is the single most frequent cause of death. Over seven million people every year die from CAD, accounting for 12.8% of all deaths. Every sixth man and every seventh woman in Europe will die from myocardial infarction. STEMI is the deadliest form of CAD. The in-hospital mortality of unselected STEMI patients in the national registries of the ESC countries varies between 6% and 14% (1-3). In the settings of STEMI, clinical outcome and survival rates vary significantly according to the baseline risk profile of each patient, determined by the presence of certain variables (4). So far, limited information is available with regard to the angiographic parameters that may influence patient prognosis (5, 6).

Purpose

The main objective of this analysis was to define the influence of various angiographic characteristics as: left main (LM) involvement,

ostial localization of the acute plaque, presence of Calcium on mortality rates in STEMI patients.

METHODS

Between June 2008 and June 2011 all consecutive 527 STEMI patients treated with pPCI in our center were included in the analysis. Between June 2008 and June 2011 all consecutive 527 STEMI patients treated with pPCI in our center were included in the analysis. STEMI was defined by ongoing chest pain for >20min, ST – elevation in at least two concordant ECG leads. For patients admitted more than once for pPCI (N=5) the first hospitalization was analysed. They were treated according to the current ESC guidelines for STEMI management. Clinical and instrumental (Echo and exercise tests) follow up was performed at 1st, 3rd, 6th and 12th month. We investigated in-hospital, 1 month, 1 year mortality grouped in early (in-hospital combined with 1 month mortality) and late (1 year mortality) as well as cumulative 1 year mortality (combining early and late mortality). The statistical

processing of the results involved parametric and non-parametric methods (Chi-Square Test) at a significance level $p < 0.05$.

RESULTS

There was significant increase in mortality rates in patients with LM stenosis $>30\%$ (33,3% vs 9,5%, $p \leq 0,001$ for cumulative one year mortality), but this factor also affects significantly early mortality (26.7% vs 5.6% $p \leq 0.0001$). Presence of Ca^{++} on target lesion

also seems to have similar influence (early mortality 18.9% vs 6.5%, $p < 0.05$, cumulative one year mortality 29.7% vs. 10.2% $p \leq 0,01$). Whereas, ostial localization of the lesions (15.2% vs. 11.3%, $p = 0,570$ cumulative one year mortality) and presence of thrombus (12,6% vs. 6,7%, $p = 0,145$ cumulative one year mortality) were not associated with deterioration of the prognosis in these patients.

Table 1. Basic and angiographic characteristics.

| | |
|--------------------------------------|------------------|
| All patients | 527 |
| Age | 62.66 ± 12.56 r. |
| Women | 31.3% (165) |
| Hypertension | 87.7% (462) |
| Dyslipidemia | 67.4% (355) |
| Smoking | 50.1% (264) |
| Obesitas | 26.6% (140) |
| Diabetes mellitus | 27.1% (143) |
| Family history for CAD | 23.7% (125) |
| Shock | 5.3% (28) |
| Number of diseased coronary arteries | |
| Single vessel disease | 44 % (232) |
| Two and three vessel disease | 56 % (295) |
| Number of arteries being treated | |
| 1 | 88.6 % (467) |
| 2 | 10.8 % (57) |
| 3 | 0.06% (3) |
| Treated arteries | |
| LMA | 2 % (11) |
| LAD | 43.8 % (231) |

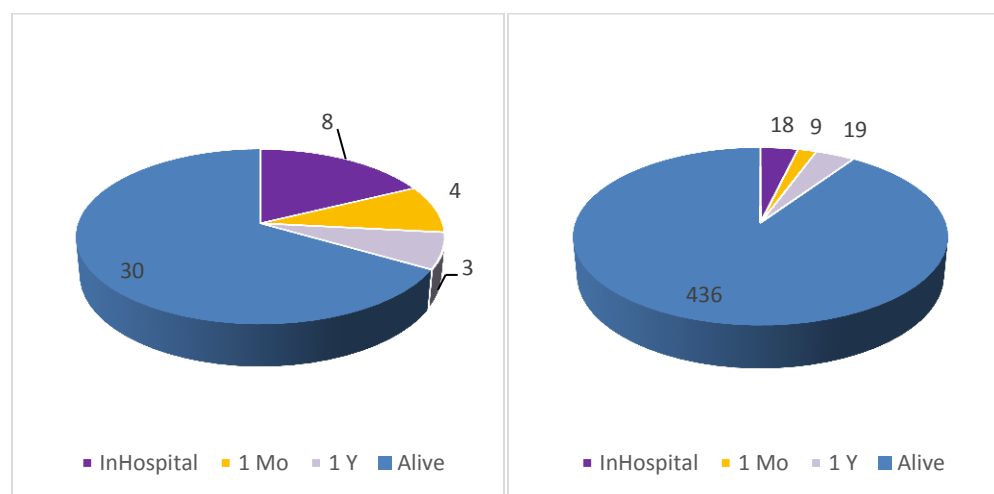


Figure 1. Influence of LMA stenosis on mortality (left side patients with LMA stenosis $\geq 30\%$, right side patients with LMA stenosis $< 30\%$). Purple - patients died in hospital, orange - patients died until 1st month, yellow – patients died until 1st year and blue patients alive during one year follow up).

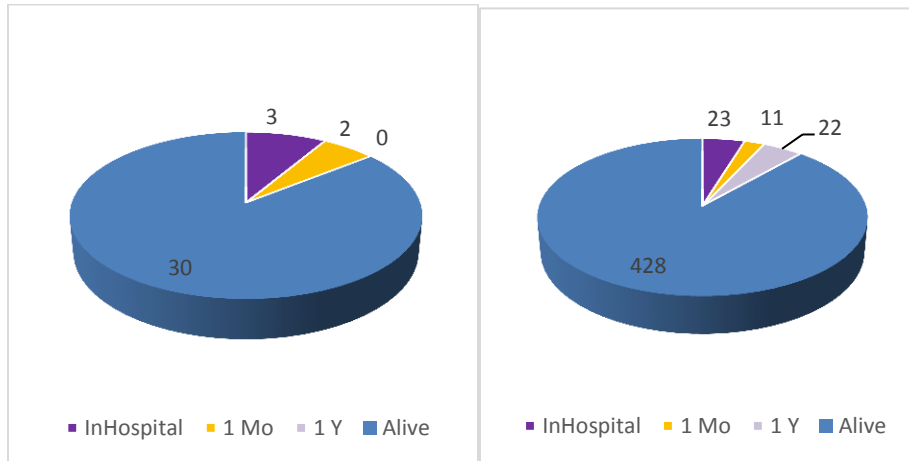


Figure 2. Influence of ostial location of culprit lesion on mortality (left side patients with ostial location, right side patients with no ostial location). Purple - patients died in hospital, orange - patients died until 1st month, yellow – patients died until 1st year and blue patients alive during one year follow up).

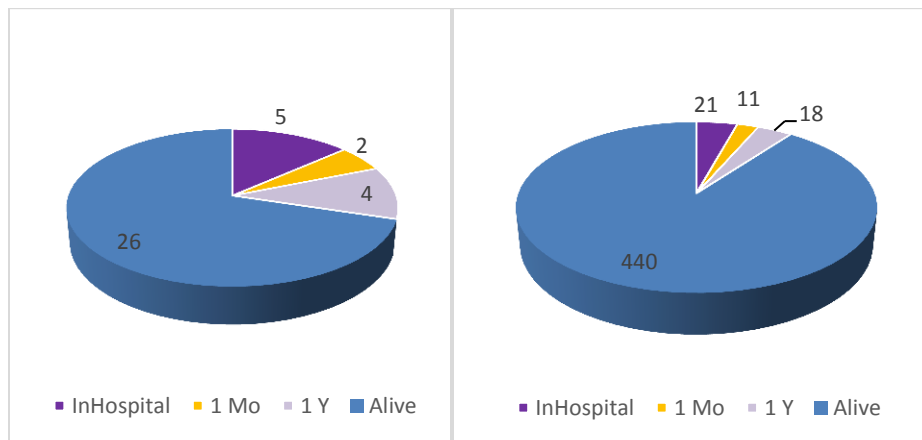


Figure 3. Influence of presence of calcium in the culprit lesion. (left side patients with presence of calcium, right side patients without calcium). Purple - patients died in hospital, orange - patients died until 1st month, yellow – patients died until 1st year and blue patients alive during one year follow up).

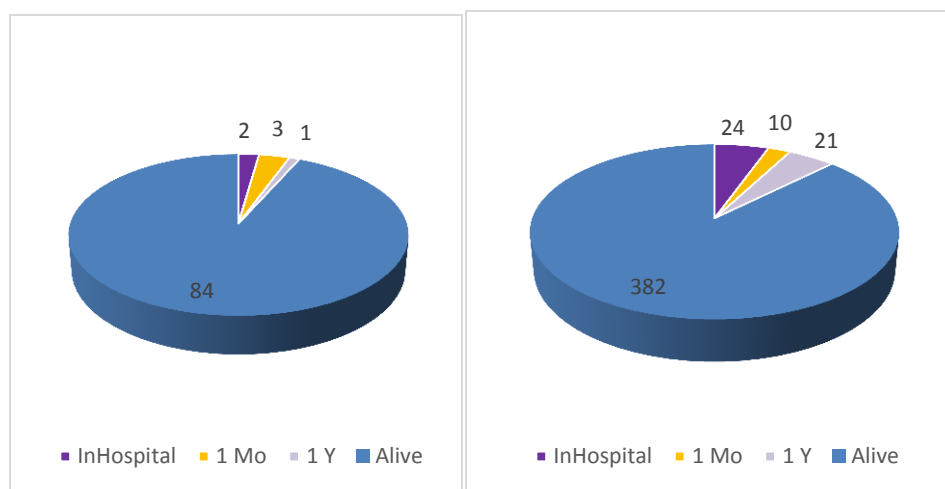


Figure 4. Influence of presence of thrombus in the culprit lesion. (left side patients with no thrombus, right side patients with thrombus). Purple - patients died in hospital, orange - patients died until 1st month, yellow – patients died until 1st year and blue patients alive during one year follow up).

CONCLUSION

Various angiographic characteristics are associated with higher mortality rates in STEMI patients, which may further alter clinical course and decision making. Our study shows that LM involvement and presence of calcium in the culprit lesion significantly increase mortality.

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