Abstract: P2652

Seasonal influences on clinical features, comorbidities, and outcome in patients with ST-elevation myocardial infarction managed invasively

Authors:
V Vintila¹, A Cotoban¹, C Udroiu², C Stuparu², L Lungeanu Juravle², D Vinereanu¹, ¹University of Medicine and Pharmacy Carol Davila - Bucharest - Romania, ²University Emergency Hospital of Bucharest, Cardiology - Bucharest - Romania,

Topic(s):
Acute Coronary Syndromes – Epidemiology, Prognosis, Outcome

Citation:
Background. Outcome of STEMI patients has improved in the last years, with better survival due to an improved onset of symptoms to balloon time, and better pharmacological and nonpharmacological treatment. However, influences of seasonal differences are not studied yet.

Purpose. To identify differences in clinical features, associated comorbidities, and outcome of ST-elevation myocardial infarction (STEMI) patients, related to seasonal differences, in a temperate continental climate.

Methods. We examined data from the electronic STEMI registry from a high-volume PPCI center. We analyzed retrospectively data from 518 STEMI patients, managed invasively, admitted in the last year. We compared clinical features, comorbidities, and outcome, between winter months (December, January, and February) and summer months (June, July, and August).

Results. 269 (52%) patients (74% men, median age 61 years) were admitted during winter months, while 249 (48%) patients (80% men, median age 59 years) were admitted during summer months. Killip class at admission was higher during winter ($\chi^2=10.2; \ p=0.017$), with significant differences for all Killip classes (Killip I: 83% winter vs. 92% summer; Killip II: 8.6% winter vs. 4.4% summer; Killip III: 3.7% winter vs. 1.2% summer; Killip IV: 4.5% winter vs. 2.0% summer, p=0.04). Meanwhile, maximal Killip class anytime during hospitalization was higher during winter ($\chi^2=9.7; \ p=0.021$). In terms of comorbidities, a trend toward more frequent atrial fibrillation (AF) was recorded during winter (5.2% vs. 2.0%; $\chi^2=3.7; \ p=0.053$). Severe left ventricular dysfunction (LVEF<30%) was more frequent among patients admitted in winter (9.7% vs. 4.4%; $\chi^2=5.4, \ p=0.020$). In-hospital mortality was higher during winter (9.7% vs. 4.4%; $\chi^2=5.4; \ p=0.020$). We computed a predictive model for in-hospital death for STEMI patients, using stepwise logistic regression analysis. Independent significant predictors were seasonal months, blood glycemia, and creatinine ($\chi^2=53.3, \ p<0.005$). Patients with STEMI admitted during winter months had a 2.8-fold increase in probability of death during index hospitalization compared with summer months.

Conclusions. Winter months are associated with worse clinical features, more frequent AF, worse LV function, and higher risk of death of STEMI patients managed invasively than summer months. We consider temperature differences, changes in air pressure, decrease in physical activity, and increase in food intake as possible explanations for worse evolution of winter patients. A prospective dedicated research is necessary to provide detailed explanations.