Evolution of in-hospital management in ST Segment Elevation Myocardial Infarction in Portuguese hospitals over the years

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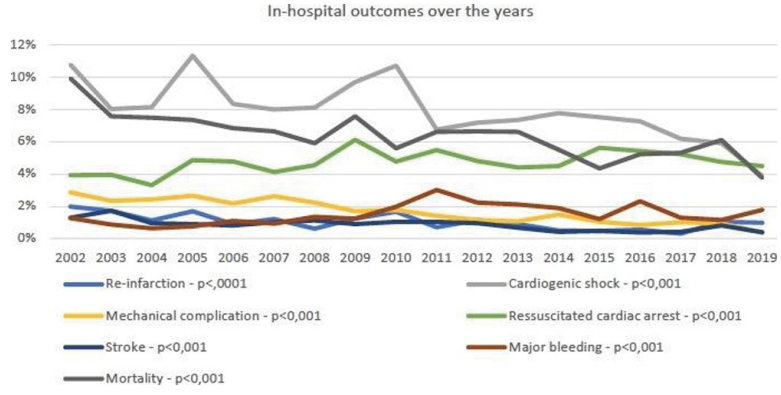
Objectives: To assess the evolution of in-hospital management of ST Segment Elevation Myocardial Infarction (STEMI) over the years in Portuguese hospitals and its impact on in-hospital complications and mortality
Methods: A nationwide electronic prospective registry that included all patients admitted to Portuguese hospitals with a diagnosis of acute coronary syndrome since 2002 until 2019 was used to collect all data relative to patients admitted with a STEMI diagnosis during that time frame. Data on demographic data, clinical data, revascularization strategy, medication during hospitalization. We compared the data and its evolution over the years to assess for trends. For statistical analysis, Qui-square tests were used to assess tendencies in categorical variables, and Kruskal-Wallis tests were used to assess tendencies in numerical variables. A p-value <0.05 was considered statistically significant.
Results: During the study, a total of 24425 patients were admitted for STEMI in Portuguese hospitals, 74.3% were male and average age of 63.9±13.6 years.
We report a progressive increase in patients treated with aspirin, P2Y12 inhibitors (from 22.2% to 97.6% – $p<0.001$), beta blockers 62.% to 72.4% – $p<0.001$), ACE inhibitors (68.9% to 78.2% – $p<0.001$) and statins (72.1% to 88.4% – $p<0.001$), a progressive decrease in GP 2a3b inhibitors (20.9 to 14.6% – $p<0.001$), enoxaparin (55.2% to 29.9% – $p<0.001$), nitrates (82.7% to 16.1% – $p<0.001$), calcium channel blockers (5.0% to 3.1% – $p<0.001$) and inotropes (12.0% to 5.6% – $p<0.001$).
There was an increase of the use primary coronary angioplasty (36.4% to 73.2% – $p<0.001$), and of drug eluting stents (0% to 70.1% – $p<0.001$) a decrease in the use of fibrinolysis (75.7% to 1.6% – $p<0.001$), bare metal stents (88.1% to 0.3% – $p<0.001$) and intra-aortic balloon pump (1.8% to 0% – p=0.009), but not in invasive mechanical ventilation (2.5% to 1.9% – p=0.142).
Less patients had moderate to severely impaired left ventricle ejection fraction (28.8% to 14.9% – $p<0.001$), and there was a significant reduction in almost all in-hospital complications: re-infarction (2.0% to 1.0% – $p<0.001$); heart failure (36.2% to 9.9% – $p<0.001$); cardiogenic shock (10.8% to 3.9% – $p<0.001$); AV block (5.8% to 2.5% – $p<0.001$); mechanical complications (2.8% to 0.4% – $p<0.001$); stroke (1.3% to 0.4% – $p<0.001$); in-hospital mortality (9.9% to 3.8% – $p<0.001$); as well as length of stay ([4–10] days to [3–6] days – $p<0.001$). Exceptions were and increase in major bleeding (0.9% to 1.8% – $p<0.001$) and resuscitated cardiac arrest (3.9% to 4.5%, p=0.001).
Conclusion: In 17 years, we report a progressive evolution of the in-hospital treatment of STEMI patients in Portuguese hospitals, with a higher prescription of guideline recommended medications, use of invasive reperfusion techniques and last generation stents, resulting in a lower rate of in-hospital complications and mortality.



In-hospital outcomes over the years