Beta-blocker use and up-titration after acute ST-segment elevation myocardial infarction: a cohort study

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Abstract

Background: The European Society of Cardiology recommends beta-blocker prescription after ST-segment elevation myocardial infarction (STEMI). Evidence for beta-blocker indication depends on the presence of left ventricular dysfunction (left ventricular ejection fraction [LVEF] <40%, class I level A; LVEF <40%, class IIa level B). In clinical practice, beta-blockers should be up-titrated to target doses as long as patients tolerate them. The aim of this study was to assess the patterns of beta-blocker prescription and up-titration after STEMI for one year after hospital discharge.

Methods: This observational study included patients admitted to a tertiary hospital for STEMI between April 2014 and April 2016. Patients with beta-blocker contraindications were excluded from the study. The primary outcomes were the patterns of beta-blocker prescription at discharge and at one year post-PCI, and the evolution of beta-blocker doses over the year. Beta-blocker doses were classified as low (<50% of the target dose) or high (≥50% target). As secondary outcomes, we assessed whether the beta-blocker prescriptions were different according to the type of hospital (university vs district) the patients were discharged from, and whether a short length of stay during the index event was related to a poor beta-blocker prescription at one year post-PCI.

Results: Overall, 266 patients were followed for one year. Of the 217 patients with LVEF ≥40%, 197 (90.8%) received beta-blocker prescriptions at hospital discharge. At the time of discharge, doses were high for 13 (6.0%) and low for 184 (84.8%) patients. In the latter group, nine (4.9%) doses were up-titrated to high during the year after STEMI. Of the 49 patients with LVEFs <40%, 46 (93.9%) received beta-blocker prescriptions at discharge. Doses were high for 3 (6.1%) and low for 43 (87.8%) patients. In the latter group, two (4.7%) doses were up-titrated to high during the year after STEMI. Patients transferred to district hospitals were more likely to have no beta-blocker prescription at discharge in both LVEF groups. Finally, patients without any beta-blocker prescription at one year were more likely to have had a short university hospital stay during the index event.

Conclusion: Beta-blocker prescription after STEMI remains prevalent, but most doses are low and up-titration within one year is rare. This raises concern, particularly for patients with LVEFs <40%. Our findings highlight the changes in clinical practice over the last few decades, which corroborate with the latest evidence-based findings.

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