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Intensification of lipid lowering therapy before and after publication of the IMPROVE-IT trial: A temporal analysis from the SPUM-ACS cohort

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Background: The gradual implementation of evidence-based treatment strategies has improved outcomes in patients with acute coronary syndromes (ACS). The Improved Reduction of Outcomes: Vytorin Efficacy International Trial (IMPROVE-IT) was published on June 3rd, 2015, but its relevance on real life practice has not been explored.

Methods: We analyzed a prospective Swiss cohort of 6266 patients hospitalized for ACS between 2009 and 2017. The primary endpoints were the ezetimibe use overall or in combination with high-intensity statin at discharge and at one year after ACS. Secondary endpoint was LDL-C target achievement at one year in a subsample of 2984 patients. Relative Ratios (RR) were used to assess changes in primary endpoints before and after the publication of IMPROVE-IT, adjusting for age, sex, pre-existing diabetes, history of myocardial infarction, baseline low-density lipoprotein cholesterol (LDL-C) and attendance to cardiac rehabilitation.

Results: The period following the publication of the IMPROVE-IT trial was associated with an overall increase in the use of ezetimibe at discharge (from 1.8% to 3.8%, $P<0.001$, adjusted RR 2.85, 95% CI 1.90–4.25) and at one year (from 5.0% to 13.8%, $P<0.001$, adjusted RR 3.00, 95% CI 2.40–3.75). Before IMPROVE-IT trial, ezetimibe use at one year was stable around 5%, then steadily increased after its publication until 20% for patients included in 2017. The combination of high-intensity statin and ezetimibe increased from 0.9% to 2.1% at discharge ($P<0.001$, adjusted RR 3.35, 95% CI 1.90–5.89) and from 2.1% to 7.8% at one year ($P<0.001$, adjusted RR 3.98, 95% CI 2.90–5.47). The period following the publication of the IMPROVE-IT trial was associated with an improvement of LDL-C target <1.8 mmol/L (adjusted RR 1.37, 95% CI 1.12–1.68).

Conclusion: After the publication of the IMPROVE-IT trial, the use of ezetimibe was increased by three-fold in a large contemporary cohort of ACS patients, concomitant with an improved LDL-C target achievement.