Efficacy and safety of ticagrelor versus prasugrel in smokers and nonsmokers with acute coronary syndromes

S. Lahu[1], G. Ndrepepa[1], S. Gewalt[1], S. Schuepke[1], I. Bernlochner[2], A. Aytekin[1], F.J. Neumann[3], M. Menichelli[4], G. Richardt[5], K.L. Laugwitz[2], H. Schunkert[1], A. Kastrati[1], K. Mayer[1]

[1]German Heart Centre Munich, Munich, Germany; [2]Klinikum rechts der Isar, Medizinische Klinik und Poliklinik Innere Medizin I, Munich, Germany; [3]University Heart Center Freiburg-Bad Krozingen, Department of Cardiology and Angiology II, Bad Krozingen, Germany; [4]Hospital Fabrizio Spaziani, Cardiology, Frosinone, Italy; [5]Heart Center Bad Segeberg, Bad Segeberg, Germany

Funding Acknowledgement: Type of funding sources: Public grant(s) – National budget only. Main funding source(s): German Centre for Cardiovascular Research;Deutsches Herzzentrum München, Germany

Background: The efficacy and safety of ticagrelor versus prasugrel according to smoking status in patients with acute coronary syndromes (ACS) are not known.

Purpose: The aim of this study was to assess the efficacy and safety of ticagrelor versus prasugrel according to smoking status in patients with ACS undergoing invasive evaluation.

Methods: This pre-specified analysis of the ISAR-REACT 5 trial included 1349 smokers and 2652 nonsmokers randomised to receive ticagrelor or prasugrel. The primary endpoint was the incidence of death, myocardial infarction, or stroke; the secondary endpoint was the incidence of Bleeding Academic Research Consortium (BARC) type 3 to 5 bleeding. Both endpoints were assessed at 12 months after randomisation.

Results: There was no significant treatment arm-by-smoking status interaction regarding the efficacy outcome. The primary endpoint occurred in 47 patients (7.0%) in the ticagrelor group and 41 patients (6.2%) in the prasugrel group in smokers (hazard ratio [HR]=1.15; 95% confidence interval [CI] 0.76–1.75; P=0.510) and in 133 patients (10.2%) in the ticagrelor group and 94 patients (7.2%) in the prasugrel group in nonsmokers (HR=1.44 [1.10–1.87], P=0.007; Pint=0.378). The secondary endpoint occurred in 27 patients (4.6%) in the ticagrelor group and 33 patients (5.6%) in the prasugrel group in smokers (HR=0.81 [0.49–1.35]; P=0.412) and in 66 patients (6.0%) in the ticagrelor group and 46 patients (4.4%) in the prasugrel group in nonsmokers (HR=1.38 [0.94–2.01]; P=0.097).

Conlusions: Although there was no significant interaction between smoking and treatment effect, the present findings suggest a greater advantage of prasugrel over ticagrelor in nonsmoker vs. smoker patients with ACS.