Abstract: P2551

A randomized, pharmacodynamic comparison of low dose ticagrelor (60mg bid) to low dose prasugrel (5mg od) in patients with prior myocardial infarction: the ALTIC-2 study

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Background: In patients with prior myocardial infarction (MI) and features of high ischemic and low bleeding risk, extending dual antiplatelet therapy beyond 1 year or reinitiating treatment is reasonable. A lower than the standard dose, namely ticagrelor 60mg bid instead of 90mg bid and prasugrel 5mg od instead of 10mg od, may be associated with reduced bleeding risk. In the Patients with Prior Heart Attack Using Ticagrelor Compared to Placebo on a Background of Aspirin–Thrombolysis in Myocardial Infarction 54 (PEGASUS-TIMI 54) trial, ticagrelor 60mg bid reduced the ischemic events, at the cost of increased bleeding events. There is no data on the pharmacodynamic efficacy of ticagrelor 60mg bid over low dose prasugrel (5mg od).

Purpose: To compare platelet reactivity (PR) between prasugrel 5mg od and ticagrelor 60 mg bid in the chronic phase of stable post-MI patients.

Methods: The ALTIC-2 was a prospective, single-center, randomized, crossover study involving patients on aspirin 100mg od and PEGASUS-TIMI 54 characteristics: >50 years old with MI 1-3 years earlier and at least one high risk feature (age >65 years, diabetes mellitus, a second MI, multivessel disease, or renal dysfunction). After a 14-day washout period—if on P2Y12 receptor antagonist therapy—patients were randomized to either ticagrelor 60mg bid or prasugrel 5mg od for 14 days, with a crossover directly to the alternate treatment for another 14 days. PR was assessed by the VerifyNow P2Y12 reaction assay in PRU at baseline, pre and post-crossover, 2 hours post last study-drug dose. Statistical analysis was performed with STATA13.0.

Results: We recruited 20 eligible patients (80% men, 40% diabetics, 65% smokers, 70% multivessel disease, with a mean age of 64.8±6.3 years) for participation in the study (10 in each treatment sequence). During pre-crossover period, in the group allocated first in prasugrel PR levels (mean ± standard deviation) decreased from 238.4±50 to 128±47 (p<0.0001), while in the group allocated first in ticagrelor levels of PR decreased from 259.6±36 to 30.8±29 (p<0.0001). At the end of the 2 treatments, PR levels decreased to 33±26 in the group allocated first in prasugrel (p=0.0001), while in the group allocated first in ticagrelor levels of PR increased to 136±61 (p=0.0001). Analysis of combined data of PR levels (pre- and post-crossover, primary endpoint) adjusted for baseline values and age showed a difference of PR levels (β= -103, 95% CI:-120 to -85) in favor of ticagrelor. A non-significant period effect was observed and no carry effect was found. The secondary endpoint of high PR (>208 PRU) rate was 0% for ticagrelor and 5.0% for prasugrel. No patient exhibited a major bleeding event at either treatment group.

Conclusions: In patients with previous MI and at least one other high-risk feature, low dose of ticagrelor results in a significantly lower PR compared to prasugrel 5mg od.