BACKGROUND Smoking increases cardiovascular risk, yet paradoxically smokers demonstrate better prognosis compared with non-smokers with clopidogrel use. Randomized data have shown improved outcomes in medically managed smokers treated with prasugrel rather than clopidogrel for acute coronary syndrome (ACS). We sought to determine if a similar effect was observed with real world use for ACS patients undergoing PCI.

METHODS PROMETHEUS was a retrospective multicenter observational study comparing clopidogrel and prasugrel use in patients undergoing PCI for acute coronary syndrome. MACE was defined as a composite of death, myocardial infarction, stroke and unplanned revascularization at one year. We compared outcomes between clopidogrel and prasugrel treatment stratified by smoking status.

RESULTS Prasugrel was given to 23.5% and 19.3% of smokers (n=5006) and non-smokers (n=14900) respectively. Compared with clopidogrel, patients receiving prasugrel were younger, male, with higher BMI and less diabetes or prior PCI. They were more likely to present with NSTEMI or STEMI and demonstrated higher left ventricular ejection fraction. Although they had a greater incidence of B2/C lesions, severe calcification and bifurcation lesions were less common. The use of bare metal stents was lower in prasugrel treated patients with a tendency to receive longer stents and stents >2.5mm in diameter. The overall crude MACE rate for the study population was 12.1% vs 20.7% with prasugrel compared with clopidogrel, p<0.001. In the smoking group, prasugrel was associated with a significantly lower risk for MACE prior to adjustment (14.2% vs 20.7%, p<0.0001). Analogous event rates in the non-smoking group were 11.2% and 20.6%, respectively (p<0.0001). The reduction was seen with post PCI patients with prasugrel (3.10% vs. 5.90%; OR= 0.53 [0.37 -0.74]; P<0.001) and only in those with prior MI with clopidogrel (4.89% vs. 6.28% OR= 0.77 [0.66 -0.9]; P<0.01) and ticagrelor (6.95% vs. 7.52%; OR= 0.84 [0.75 -0.93]; P<0.001). Long-term use of DAPT was associated with significant increase in major bleeding (1.47% vs. 0.88%; OR= 1.65 [1.23 - 2.21]; P=0.001).

CONCLUSIONS Compared with clopidogrel use, prasugrel was associated with an accentuated benefit in non-smokers compared to smokers with ACS undergoing PCI.

CATEGORIES CORONARY: Pharmacology/Pharmacotherapy

KEYWORDS Acute coronary syndromes, Antiplatelet therapy, Smoking

TCT-222 Long-Term Use of Dual antiplatelets For The Secondary Prevention of Atherothrombotic Events In Patients with Coronary Artery Disease: Meta-analysis of Randomized Controlled Trials.

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BACKGROUND The potential benefit of long-term dual antiplatelet therapy (DAPT) for secondary prevention of atherothrombotic events in patients with coronary artery disease (CAD) is unclear. Data from different randomized controlled trials (RCT) using different agents in different subgroups showed inconsistent results. The goal of this study was to evaluate the efficacy and safety of long term DAPT for secondary prevention.

METHODS We performed a systematic review and meta-analysis from RCTs that tested different prolonged durations of DAPT for secondary prevention. Long term DAPT (L-DAPT) arm was defined as those receiving DAPT for more than 12 months. The long-term aspirin arm (L-ASA) was defined as those receiving either long-term aspirin monotherapy or DAPT for 6 months or less.

RESULTS Our systematic literature search identified 2456 articles, of which 6 met the inclusion criteria for this analysis. These 6 RCT included a total of 47,734 patients (27657 L-DAPT and 20077 L-ASA). The use of L-DAPT was associated with a significant decrease in composite of death, myocardial infarction (MI) and stroke (6.08% vs. 6.71%; Odd Ratio OR= 0.86 [0.78 -0.94]; P<0.001). This reduction was mainly driven by a reduction in MI, but not in death, cardiac death or stroke. This reduction of death, MI and stroke was mainly noticed in patients with prior MI (6.32% vs. 7.28%; OR= 0.86 [0.79 -0.94]; P<0.001) but in those who had PCI with no MI. The reduction was seen with post PCI patients with prasugrel (3.10% vs. 5.90%; OR= 0.53 [0.37 -0.74]; P<0.001) and only in those with prior MI with clopidogrel (4.89% vs. 6.28% OR= 0.77 [0.66 -0.9]; P<0.01) and ticagrelor (6.95% vs. 7.52%; OR= 0.84 [0.75 -0.93]; P<0.001). Long-term use of DAPT was associated with significant increase in major bleeding (1.47% vs. 0.88%; OR= 1.65 [1.23 - 2.21]; P=0.001).

CONCLUSIONS Long-term use of DAPT for secondary prevention is associated with lower risk of death, MI and stroke in patients with prior MI, but it is associated with increased risk of bleeding. Prolonging DAPT requires careful assessment of the trade-off between ischemic and bleeding complications and should probably be reserved for those with highest risk for atherothrombotic events.

CATEGORIES CORONARY: Pharmacology/Pharmacotherapy

KEYWORDS Dual antiplatelet therapy, Prevention

TCT-223 Do hematocrit and hemoglobin levels influence the assays of on-treatment platelet reactivity to clopidogrel?

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BACKGROUND Previous studies have reported a considerable association hematocrit and hemoglobin had with the VerifyNow P2Y12 assay results. However, little has been documented on association hematocrit and hemoglobin had with the VerifyNow P2Y12 assay results. This study was conducted to evaluate the influence of hematocrit/hemoglobin on the results of 2 different platelet function tests.

METHODS On-treatment platelet reactivity to clopidogrel was tested in 102 Consecutive patients with AMI or coronary artery in-stent restenosis treated with standard-dose clopidogrel. Platelet function was evaluated with both VerifyNow P2Y12 and VASP assays.

RESULTS Lower hematocrit/hemoglobin was found to be associated with higher P2Y12 reaction unit (PRU) and a higher rate of HTPR (P<0.001). Analogous event rates in the non-smoking group were 11.2% and 20.6%, respectively (p<0.0001). Results remained significant for non-smokers but not smokers with evidence for interaction after adjustment (p=0.02) (Figure).

CONCLUSIONS Compared with clopidogrel use, prasugrel was associated with an accentuated benefit in non-smokers compared to smokers with ACS undergoing PCI.