4529 | BESIDSE
Ticagrelor improves peripheral arterial function in patients with a previous acute coronary syndrome
Purpose: The novel P2Y12 antagonist ticagrelor inhibits ADP-induced platelet aggregation more potently than clopidogrel and reduces the incidence of myocardial infarction and total death in patients with an acute coronary syndrome (ACS). Besides platelet inhibitory effects, ticagrelor inhibits adenosine re-uptake and increases coronary flow reserve during adenosine infusion in man.

The purpose of the present study was to determine whether ticagrelor improves peripheral arterial function in patients with a previous ACS compared to patients treated with aspirin, clopidogrel or prasugrel.

Methods: 127 patients with a previous ACS (~3 months, <3 years ago) on maintenance dose of (1) no ADP-blocker, n=35, (2) clopidogrel 75 mg, n=35, (3) prasugrel 10 mg n=32, or (4) ticagrelor 90 mg bid, n=25, were evaluated with peripheral arterial tonometry before forearm ischemia. The ATOLL (Acute ST-elevation myocardial infarction treated with enoxaparin compared with UFH) showed a trend to decreased release of the novel P2Y12 antagonist ticagrelor improves peripheral arterial function in patients with a previous ACS compared to patients treated with aspirin, clopidogrel or prasugrel.

Results: The results demonstrated that ticagrelor increases peripheral arterial tone compared to aspirin, clopidogrel or prasugrel. The other groups: (1) 1.78±0.53 (2) 1.78±0.46 (3) 1.64±0.33 (4) 2.25±0.54, mean ± SD, ticagrelor vs no ADP-blocker p<0.01, vs clopidogrel p<0.01, vs prasugrel p<0.001. There were fewer patients with endothelial dysfunction in ticagrelor (1.67 RHI) as compared to ticagrelor group 12% compared to aspirin 51%, clopidogrel 46% and prasugrel 53%, p<0.01.

Conclusion: In conclusion, our data show that, in patients with a previous ACS, treatment with ticagrelor improves peripheral arterial function compared to aspirin, clopidogrel or prasugrel treatment. Further studies are needed to understand if this effect contributes to the clinical effects of ticagrelor.

4530 | BESIDSE
Peri-procedural thrombin generation predicts ischemic complications in primary percutaneous coronary intervention
Background: The ATOLL (Acute ST-elevation myocardial infarction Treated with enoxaparin Or unfractionated heparin to reduce Mortality and clinical outcomes in 31.1% of the patients randomized in the conventional arm (HR 1.11 [0.91; 1.34]) vs 0.31 and 1.14 [0.97; 1.33] p<0.001 for both comparisons). Despite using a much stronger antiplatelet strategy (ticagrelor), major bleeding did not differ between HPR patients as compared with non-HPR patients (2.6% vs. 2.1%, respectively, HR 0.78 [0.56; 1.10]) or prasugrel 10 mg (1.6% vs. 4.4%, p<0.001) was also significantly more frequent in HPR patients at discharge as compared with non-HPR patients.

The PEP occurred in 34.8% of the patients with HPR who underwent treatment adjustment, in 34.6% of the non-HPR patients (HR 0.97 [0.80; 1.19], p=0.8) and in 31.1% of the patients randomized in the conventional arm (HR 1.11 [0.91; 1.34]) p<0.001 for both comparisons). Despite using a much stronger antiplatelet strategy (ticagrelor), major bleeding did not differ between HPR patients as compared with non-HPR patients (2.6% vs. 2.1%, respectively, HR 0.78 [0.56; 1.10]) or prasugrel 10 mg (1.6% vs. 4.4%, p<0.001) was also significantly more frequent in HPR patients at discharge as compared with non-HPR patients.

In ARCTIC, the prognosis of patients with HPR before PCI leading to antiplatelet therapy adjustment did not differ from patients without HPR and without adjustment of therapy. Although, this subgroup analysis confirms the main finding of the study, the hypothesis that tailoring might have corrected impaired prognosis associated with HPR in this high-risk group of patients cannot be eliminated by the ARCTIC study.

4531 | BENCH
Pharmacodynamic response to clopidogrel and outcomes in the ARCTIC randomized trial
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Background: The ARCTIC trial failed to demonstrate improvements in outcomes with platelet-function monitoring and treatment adjustment for PCI.

Aim: To analyze clinical outcome according to clopidogrel pharmacodynamic (PD) response using the VerifyNow assay just before PCI.

Methods: Among patients randomized in the monitoring arm of the ARCTIC trial (n=1213), 419 (34.5%) had high-on-treatment platelet reactivity (HPR patients) before PCI and underwent treatment adjustment. We compared the occurrence of the composite primary endpoint (PEP) of death, MI, stent thrombosis, stroke, or urgent revascularization 1 year after stent implantation in patients presenting HPR to clopidogrel before PCI (n=419), non-HPR patients (n=794) and patients randomized in the conventional arm without PD evaluation (n=1227).

Safety bleeding endpoints were also analyzed.

Results: HPR to clopidogrel was associated with higher age, female gender, higher bodyweight, diabetes and PPI use (all p<0.05). HPR patients underwent more aggressive antiplatelet strategy than non-HPR patients due to the study protocol, with significant more frequent use of GPIb/IIa inhibitors (79.2% vs. 52.2%, p<0.001), clopidogrel LD (80.2% vs 3.5%, p<0.001) or prasugrel LD before PCI (3.3% vs. 0.1%, p<0.001) as compared with non-HPR patients. High clopidogrel MD (150 mg or more) (82.6% vs. 32%, p<0.001) or prasugrel 10 mg MD (16.8% vs. 4.4%, p<0.001) was also significantly more frequent in HPR patients at discharge as compared with non-HPR patients.

The PEP occurred in 34.8% of the patients with HPR who underwent treatment adjustment, in 34.6% of the non-HPR patients (HR 0.97 [0.80; 1.19], p=0.8) and in 31.1% of the patients randomized in the conventional arm (HR 1.11 [0.91; 1.34]) p<0.001 for both comparisons). Despite using a much stronger antiplatelet strategy (ticagrelor), major bleeding did not differ between HPR patients as compared with non-HPR patients (2.6% vs. 2.1%, respectively, HR 0.78 [0.56; 1.10]) or prasugrel 10 mg (1.6% vs. 4.4%, p<0.001) was also significantly more frequent in HPR patients at discharge as compared with non-HPR patients.

In ARCTIC, the prognosis of patients with HPR before PCI leading to antiplatelet therapy adjustment did not differ from patients without HPR and without adjustment of therapy. Although, this subgroup analysis confirms the main finding of the study, the hypothesis that tailoring might have corrected impaired prognosis associated with HPR in this high-risk group of patients cannot be eliminated by the ARCTIC study.

4532 | BESIDSE
Antiplatelet therapy and stent thrombosis after sirolimus-eluting stent implantation
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Background: The influence of antiplatelet therapy discontinuation on the incidence of stent thrombosis, especially very late stent thrombosis, after drug-eluting stent implantation has not been adequately addressed in a large population.

Methods: Relationship between antiplatelet therapy discontinuation and stent thrombosis up to five years were evaluated in 12812 consecutive patients undergoing sirolimus-eluting stents (SES) implantation in the J-Cypher registry. Data on...