Antiplatelet drug

see Antiplatelet drugs and neurosurgical procedures.

Drugs that interfere with platelet function can be classified into 3 categories:

Those that prevent cardiovascular disease (primary prevention), those that treat an acute disease, and those that treat a chronic disease (secondary prevention)

There are both oral (taken by mouth) and intravenous (given through a vein) drugs that inhibit platelet function and are used to treat patients with cardiac and cerebrovascular diseases.

see Dual antiplatelet therapy.

Classification

The class of antiplatelet drugs includes:

Irreversible cyclooxygenase inhibitors

Aspirin

Triflusal (Disgren)

Adenosine diphosphate (ADP) receptor inhibitors

Clopidogrel (Plavix)

Prasugrel (Effient)

Ticagrelor (Brilinta)

Ticlopidine (Ticlid)

Phosphodiesterase inhibitors

Cilostazol (Pletal)

Protease-activated receptor-1 (PAR-1) antagonists

Vorapaxar (Zontivity)

Glycoprotein IIB/IIIA inhibitors (intravenous use only)

Abciximab (ReoPro)

Eptifibatide (Integrilin)

Tirofiban (Aggrastat)

Adenosine reuptake inhibitors

Dipyridamole (Persantine)

Thromboxane inhibitors

Thromboxane synthase inhibitors

Thromboxane receptor antagonists

Terutroban

Among ICU patients admitted with intracranial hemorrhage, preadmission oral antiplatelet use was not associated with increased in-Hospital mortality or hospital costs. These findings have important prognostic implications for clinicians who care for patients with intracranial hemorrhage [1)].

Complications

Antiplatelet complications.

Antiplatelet treatment on aneurysmal subarachnoid hemorrhage

Antiplatelet treatment (APT) has been reported to be used in some patients with aneurysmal subarachnoid hemorrhage (aSAH) after endovascular treatment, but there is controversy among different studies regarding its clinical effects. Zhao et al. intend to conduct a meta-analysis to evaluate the impact of APT on aSAH patients after endovascular treatment. The PubMed, EMBASE, and Cochrane Library databases were systematically searched up to January 2022 for eligible English publications. Quality assessment was conducted for the included studies. Publication bias and heterogeneity were assessed by Egger's test and the I2 statistic, respectively. Odds ratios (ORs) with 95% confidence intervals (CIs) were calculated by meta-analysis. Robustness was checked by subgroup and sensitivity analyses. In total, 597 and 522 patients with and without APT, respectively, in 5 retrospective studies were retained for the meta-analysis. Pooled analyses showed that the APT group had a lower mortality (41/499 [8%] versus 56/402 [14%]; OR = 0.533; 95% CI, 0.347-0.820; P = 0.004) and a higher proportion of favorable clinical outcomes (400/532 [75%] versus 266/421 [63%]; OR = 1.801; 95% CI, 1.359-2.414; P = 0.000) than the control group. There was no significant difference in the incidence of hemorrhagic complications (39/564 [7%] versus 26/503 [5%]; OR = 1.386; 95% CI, 0.825-2.329; P = 0.218) between groups. Although the incidence of delayed cerebral ischemia (DCI) was significantly lower in the APT group (65/512 [13%] versus 105/447 [23%]; OR = 0.325; 95% CI, 0.107-0.988; P = 0.048), it showed substantial heterogeneity (I2 = 64.7%). Subsequent sensitivity analysis suggested that the meta-analysis was robust. Subgroup analyses revealed that long-term (> 2 weeks) APT (60/479 [13%] versus 103/428 [24%]; OR = 0.212; 95% CI, 0.056-0.806; P = 0.023) significantly reduced the DCI rate and that different grouping method in the included studies may be a source of heterogeneity. In the absence of randomized controlled trials, a meta-analysis of retrospective studies suggested that antiplatelet treatment was associated with

reduced mortality and better functional outcomes in aneurysmal subarachnoid hemorrhage patients after endovascular treatment without an increased incidence of hemorrhagic complications. Long-term APT was also associated with a decrease in the incidence of DCI. Well-designed randomized controlled trials are warranted and updated meta-analyses are needed to verify these findings [2].

An anonymous survey of 11 multiple-choice questions about the management of aSAH patients with antiplatelet use before the initial hemorrhage was distributed to the international panel of attendees of the European Association of Neurosurgical Societies (EANS) annual meeting in Venice, Italy at 1-5 October 2017.

A total of 258 (54%) completed surveys were returned. In about 80%, the departments of neurosurgery and neurology were responsible for acute management of aSAH patients, whereas in 15% the intensive care unit. Department guidelines were present in 32%. In 65%, the responders always stop the antiplatelet agent at admission, and in 4.3% are thrombocytes always transfused. When a guideline is present, the neuro specialists consider thrombocyte transfusion more often (83% vs. 65% p=0.02).

The survey among mainly European neurosurgeons shows that there is significant variability in the management of aSAH patients who have been using antiplatelets before the initial hemorrhage. These findings emphasize the importance of the development of evidence-based guidelines for the management of patients with aSAH and antiplatelet use before the initial hemorrhage [3].

1)
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2)
Zhao L, Lin P, Zhang Y, Huang XY, Li HY, Xia MK, Huang X, Li Z, Zhou LX, Tang XP. Effect of antiplatelet treatment on aneurysmal subarachnoid hemorrhage patients after endovascular treatment: a systematic review with meta-analysis. Neurosurg Rev. 2022 Sep 30. doi: 10.1007/s10143-022-01877-2. Epub ahead of print. PMID: 36178562.
3)
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