Delayed cerebral ischemia prevention

Nimodipine for delayed cerebral ischemia prevention

see Nimodipine for delayed cerebral ischemia prevention.

Antiplatelets for delayed cerebral ischemia prevention

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 antiplatelet treatment was also associated with a decrease in the incidence of Delayed cerebral ischemia. Well-designed randomized controlled trials are warranted and updated meta-analyses are needed to verify these findings [1].

Regular administration of aspirin might have a positive impact on DCI risk and outcome of SAH patients, without increasing the risk for clinically relevant bleeding events. In a SAH cohort, dual antiplatelet therapy showed no additional benefit on DCI risk but increased the likelihood of major bleeding events [2]

Statins for delayed cerebral ischemia prevention

Metaanalysis indicated that the use of statins decreases the occurrence of cerebral vasospasm, whereas did not support a beneficial effect of statins on the occurrence of delayed ischemic neurological deficit (DIND), death or poor neurological outcomes in patients with aneurysmal SAH [3].

Neuromonitoring

Local intraparenchymal neuromonitoring in the anterior cerebral artery/middle cerebral artery watershed area might detect the vast majority of delayed cerebral ischemias for all intracranial aneurysm locations, except for basilar artery aneurysms. In ACA and AcomA aneurysms, bilateral DCI of the ACA territory was common, and bilateral probe positioning might be considered for monitoring high-risk patients. Non-focal monitoring methods might be preferably used after BA aneurysm rupture [4].

1)
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.
2)

Darkwah Oppong M, Gembruch O, Pierscianek D, Köhrmann M, Kleinschnitz C, Deuschl C, Mönninghoff C, Kaier K, Forsting M, Sure U, Jabbarli R. Post-treatment Antiplatelet Therapy Reduces Risk for Delayed Cerebral Ischemia due to Aneurysmal Subarachnoid Hemorrhage. Neurosurgery. 2019 Dec 1;85(6):827-833. doi: 10.1093/neuros/nyy550. PMID: 30544176.
3)

Zhu RL, Chen ZJ, Li S, Lu XC, Tang LJ, Huang BS, Yu W, Wang X, Qian TD, Li LX. Statin-treated patients with aneurysmal subarachnoid haemorrhage: a meta-analysis. Eur Rev Med Pharmacol Sci. 2016 May;20(10):2090-8. PubMed PMID: 27249609.
4)

Hurth H, Steiner J, Birkenhauer U, Roder C, Hauser TK, Ernemann U, Tatagiba M, Ebner FH. Relationship of the vascular territory affected by delayed cerebral ischemia and the location of the ruptured aneurysm in patients with aneurysmal subarachnoid hemorrhage. Neurosurg Rev. 2021 Mar 29. doi: 10.1007/s10143-021-01522-4. Epub ahead of print. PMID: 33782797.