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Platelet activation may be more important in artery-to-artery embolism than in local branch occlusion among ischemic stroke due to large artery atherosclerosisKyung Chul Noh^{1,2}, Dae-il Chang¹, Sun Uk Kwon² and Bum Joon Kim¹¹Kyung Hee University College of Medicine, Republic of Korea²Asan Medical Center, Republic of Korea

Treatment failure of stroke is commonly attributed to multiple causes, including vascular factors causing increased platelet activation or failure to uncover the true cause or mechanism of stroke. Clinicians are faced with options of switching to a new antiplatelet medication or using a combination of antiplatelet medications in the acute setting and for long-term secondary stroke prevention, balancing future protective benefit and risks. We have consecutively enrolled patients with ischemic stroke classified as LAA and under the use of aspirin. Ischemic stroke was classified according to the location of atherosclerosis, ischemic lesion pattern and mechanism of stroke. Aspirin resistance unit (ARU) was measured at the day of admission ARU>550 was regarded as resistant to aspirin. ARU and proportion of patients with aspirin resistance was compared among different groups. ARU was higher in those with extracranial than intracranial atherosclerosis (492.9 vs., 461.8; respectively, $p=0.007$). Aspirin resistance was more frequently observed from extracranial atherosclerosis (28.8% vs., 10.3%; $P=0.001$). By mechanism ARU was low in those with local branch occlusion than other mechanisms ($p=0.037$). Aspirin resistance was less frequent in those with local branch occlusion (20.2% vs., 3.4%; $p=0.029$). Similarly, ARU was most low in those with subcortical infarction pattern ($p=0.001$). ARU in Ischemic stroke due to LAA differs according to the mechanism of stroke. Ischemic stroke occurring under aspirin due to extracranial atherosclerosis and artery-to-artery embolism is associated with aspirin resistance, whereas the role of platelet inhibition is limited in ischemic stroke due to local branch occlusion in intracranial atherosclerosis.

Recent publications:

1. Kernan W N, Ovbiagele B and Black H R, et al. (2014) Guidelines for the prevention of stroke in patients with stroke and transient ischemic attack: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 45(7):2160-236.
2. Badimon L and Vilahur G (2014) Thrombosis formation on atherosclerotic lesions and plaque rupture. *J Intern. Med.* 276(6):618-32.
3. Furie K L, Kasner S E and Adams R J, et al. (2011) Guidelines for the prevention of stroke in patients with stroke or transient ischemic attack: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 42:227-76.
4. Yip S and Benavente O (2011) Antiplatelet agents for stroke prevention. *Neurotherapeutics* 8(3):475-87

Biography

Kyung Chul Noh has expertise in stroke evaluation and passion in improving the health in Korea. He is in the first year of stroke fellowship in Asan Medical Center, Seoul, South Korea and majoring in stroke. He is interested in personalized treatment in Neurology field, adjusting antiplatelet or anticoagulation therapy in each stroke patient.

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