Abstract Title: Aspirin Resistance is Associated with Increased Stroke Severity and Infarction Volume

Press Release Title: Resistance to Aspirin Tied to More Severe Strokes

Objective: The aim of our study was to evaluate the effect of AR on initial stroke severity and infarct size on diffusion weighted imaging (DWI) in patients with acute ischemic stroke receiving aspirin before stroke onset

Author(s): Mi Sun Oh, Kyung-Ho Yu, Byung-Chul Lee

Background: Prior aspirin use has been associated with lower stroke severity and decreased infarction growth. However, the effect of aspirin resistance (AR) on stroke severity has been inconclusive.

Design/Methods: We enrolled patients with 1) at least 7 d of aspirin before symptom onset, 2) evidence of ischemic stroke on DWI, and 3) AR checked within 24 h of hospital admission. Patients were excluded 1) concurrently taking an additional antiplatelet or anticoagulant, or 2) having a pre- mRS score of > 2. AR was assessed using the VeryflyNow system and determined by a cut off 550 aspirin reaction unit (ARU). The initial stroke severity was measured by NIHSS score. The volume of infarction on DWI was measured using a semiautomated threshold technique.

Results: Among the 311 patients included in our study, 78 patients (25.1%) had AR. Median NIHSS score (median, [interquartile range, IQR] was higher in the AR) than in the aspirin-sensitive (AS) group (4 [2,11] vs. 3 [1,6]). Median DWI infarction volume was larger in the AR than in the AS group (2.8 cc [0.7,18.7] vs. 1.6 cc [0.4,9.5]). Compared with the AS group, the initial NIHSS score with log transformation (least-square [LS] mean, 95% confidence interval [CI]) was higher in the AR group in multivariable analysis (2.0 [1.8-2.2] vs. 1.7 [1.5-1.9], p=0.004). AR was also associated with increased infarction volume on DWI with log transformation (LS mean, [95% CI]) in multivariable analysis (1.6 [1.1-2.1] versus 1.1 [0.7-1.4], p=0.036).

Conclusion: AR is independently associated with increased initial stroke severity and stroke volume in acute ischemic patients.
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