

The Association between Age and Response to Aspirin: A Cohort Study on Patients with Stable Coronary Artery Disease

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Background:

The response to aspirin therapy varies among individuals with coronary artery disease (CAD). Low response is associated with adverse clinical outcomes in this population. Nevertheless, no established data are known regarding response to aspirin in the elderly population. We sought to evaluate this phenomenon in a cohort of patients with stable CAD and compare it by age.

Methods:

The study included 583 patients with stable CAD. All were treated with aspirin (75-325 mg/day) for at least one week. Response to aspirin was evaluated in all patients with the VerifyNow Aspirin assay and additionally in 149 patients with light transmittance platelet aggregation in response to arachidonic acid (LTA).

Results:

The study group (67±11 years, 80% males) was divided by a cutoff age of 75 years into two groups: young group (n= 438, average age 62±9 years, range 33-74 years, 78% males); and elderly group (n=145, average age 80±4 years, range 75-92 years, 83% males). Aspirin doses were similar in both groups with the majority in each group (81.5%) receiving low-dose aspirin (75-100 mg/day). The mean VerifyNow score was significantly higher in the elderly group: 450±54 vs. 434±53 ARU, $p=0.0007$. The VerifyNow score was higher in the elderly group for both genders. Of the following variables (age, gender and BMI) linear correlation was found only between age and VerifyNow score ($r=0.15, p=0.001$). When VerifyNow cutoff for aspirin resistance was set to ≥ 500 ARU, resistance was more prevalent in the elderly group (19% vs. 11%, $p=0.009$). The LTA score was also greater in the elderly group 13.5±6% vs. 10.9±5.2%, $p=0.03$, indicating lower response to aspirin.

Conclusions:

We identified lower response to the anti-platelet effects of aspirin in elderly patients with CAD based on both VerifyNow and LTA assays. The clinical significance of these observations requires further study.