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Low-dose aspirin for primary prevention in persons with subclinical coronary heart disease: rationale for expanded use temporally related to onset of viral pandemics

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ABSTRACT

Advances in risk stratification are foundational for enhanced primary cardiovascular prevention. Low-dose aspirin guided by coronary artery calcium scoring has accordingly been recommended for persons at risk due to subclinical coronary heart disease. Findings related to low-dose aspirin and cardiovascular outcomes during the recent SARS-COVID-19 pandemic are reviewed. The rationale for expanding such use in vulnerable elderly persons to mitigate the transiently elevated cardiac risk of viral epidemics is considered.

Keywords: aspirin, primary cardiovascular prevention, viral pandemics

Background:

Based on a 40% decrease in first heart attacks in middle-aged men in the final report on aspirin in the randomized controlled Physician's Health Study[1], low-dose aspirin was recommended to reduce the transiently elevated risk of cardiac arrest in same-aged men during marathons[2]. This approach was subsequently expanded to provide enhanced primary prevention for persons at risk due to subclinical atherosclerotic coronary artery disease demonstrated by coronary artery calcium scores above 100 Agatston units (Table 1)[3,4]. This strategy is supported by demonstration of a significant reduction in major acute cardiac events in persons at moderate baseline risk with the addition of aspirin to the polypill in the randomized controlled (TIPS-3) primary prevention trial[5]. Such use endorsed for primary prevention in persons at high risk is in current guidelines of the American Heart Association and the American College of Cardiology[6].

Findings on aspirin use during the SARS-COVID-19 pandemic:

Viral epidemics such as influenza and the recent SARS-COVID-19 infection increase cardiovascular events 3 to 5 times following acute infection, which risk continues up to 1 year in vulnerable elderly persons. This recent outbreak resulted in over one million fatalities in the United States mostly in such persons. Reports on the effect of aspirin use on cardiovascular outcomes during the recent SARS-COVID–19 pandemic are assessed herein, following consideration on expanding such use for enhanced primary prevention related to that pandemic[7]:

- Low-dose aspirin use for primary prevention of cardiovascular disease was associated with a lower likelihood of SARS-COVID-19 infection but wihout a reduction in severity of illness[8,9].
- Active prescription of low-dose aspirin during or prior to hospitalization for SARS-COVID-19 was associated with a decrease in mortality[10].
- Low–dose aspirin was associated with a reduction in cardiovascular morbidity and mortality in elderly patients[11].

While vaccinations for influenza and SARS-COVID-19 have been demonstrated to reduce acute cardiovascular events including morbidity and mortality especially in the vulnerable elderly, such measures are not available worldwide especially in under-resourced areas. Inexpensive and readily available, low-dose aspirin use may serve as an adjunctive preventive strategy to mitigate the transiently increased burden of cardiovascular disease, associated with viral epidemics. The United Stares is facing its worst flu season in 25 years due to a new strain of influenza A, causing 15 million illnesses, 180,000 hospitalizations and 7,400 deaths as of January 3, 2026, according to the Communicable Disease Center[12].

The findings of the extended observational analysis in the Aspirin in Reducing Events in the Elderly (ASPREE-XT) trial showed no overall reduction in major acute cardiac events and increased harm such as gastrointestinal bleeding[13]. Paradoxically, vulnerable elderly persons who might benefit the most from low-dose aspirin use temporally related to viral epidemics are also the most susceptible to adverse effects. As with middle-aged male marathon runners, coronary artery calcium scoring may provide an independent and reliable assessment of risk for major acute cardiac events upon which to base shared decision making[14].

Mindful that more than one million deaths occurred mostly in vulnerable elderly persons during the last SARS-COVID-19 epidemic, enhancing primary prevention with expanded low-dose aspirin use especially in such patients may be prudent for averting similar catastrophic outcomes moving forward. The approach herein might be regarded as proposing a specific exception for vulnerable patients to the findings upheld in ASPREE-XT that low-dose aspirin use is not advised for continuous use in elderly persons at large.

Summary:

Findings in recent studies support the use of low-dose aspirin to reduce the cardiovascular burden associated with the SARS-COVID-19 pandemic, especially in vulnerable elderly persons. This approach warrants consideration to selectively enhance primary cardiovascular prevention in vulnerable elderly persons before future viral epidemics.

Take-away points:

1. Low-dose aspirin use for enhanced primary prevention is prudent for vulnerable elderly persons to mitigate the transiently increased cardiovascular burden associated with viral epidemics such as SARS-COVID-19 infection.
2. Guidelines of the American Heart Association and American College of Cardiology endorse low-dose aspirin for primary prevention in persons at high risk.

Conflicts of interest: None

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