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News Release

New Research Highlights the Role of Aspirin and Advanced Ultrasound Techniques in Cardiovascular Health

- Recent studies suggest current approach to current cardiovascular risk assessment is inadequate
 - A more personalized approach offers new opportunities for positive intervention
 - Affordable, accessible tools like ultrasound increase access to assessing cardiovascular risk
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Basel, Switzerland, February 18, 2025 – With the recent 125th anniversary of aspirin's discovery, new research is shedding light on innovative approaches to cardiovascular health that can increase access to cardiovascular disease prevention through more precise and individualized care. A series of recent studies emphasize the importance of viewing cardiovascular risk as a continuum and utilizing affordable and easily available tools like carotid ultrasound to better assess individual patient risk, thereby enhancing access to effective treatment options including aspirin. This research was supported by a grant from Bayer.

"Aspirin is one of the most studied medicines in the world, and we continue to learn more about it every day," said Dr. Ricardo Salazar, head of medical and evidence generation for the Consumer Health division of Bayer. "Recently, the latest science is shining light on how a modernized approach to assessing risk of cardiovascular disease could open the door to millions of people taking action to lower their risk of an event like heart attack or stroke."

"These publications emphasize the importance of a personalized approach to cardiovascular (CV) risk management, particularly for patients with advanced subclinical atherosclerosis" said Dr. Michael Blaha, Director of Clinical Research, Johns Hopkins Ciccarone Center for the Prevention of Heart Disease, Professor of Cardiology,

Department of Medicine, Johns Hopkins University. “It highlights that while recent guidelines have downgraded the routine use of aspirin for primary prevention, there remains a subset of asymptomatic patients with high CV risk who may benefit from aspirin therapy. This approach involves balancing the potential benefits of aspirin in reducing CV events against the risks of bleeding, using tools like coronary artery calcium (CAC) scoring and carotid plaque scores (CPS) to better assess individual risk.” Dr. Blaha is a member of the Bayer AG Global Advisory Board.

Better Understanding Cardiovascular Risk

Patients’ cardiovascular risk is most often related to either primary or secondary cardiovascular disease (CVD) prevention. Primary prevention of CVD refers to any measures taken to prevent the first CVD event while secondary prevention of CVD refers to all measures taken after a first CVD event (heart attack or stroke). However, a recently published position paper (Advanced Subclinical Atherosclerosis: A Novel Category Within the Cardiovascular Risk Continuum with Distinct Treatment Implications) (1) finds new factors that suggest this binary approach is inadequate to properly assess patient risk. Researchers found that a novel category within the cardiovascular risk continuum, advanced subclinical atherosclerosis, has distinct treatment implications.

Advanced subclinical atherosclerosis is characterized by early build-up of plaque in the arteries. More than 50% of patients with high plaque burden but no stenosis will suffer an ischemic event. Despite this, they do not fall into either primary or secondary risk classifications and are often not recommended interventions appropriate to the risk they face. Renewed efforts for lifestyle modification and aggressive management of relevant risk factors, including the use of low-dose aspirin, may be recommended for individuals with this condition.

Personalized Approach to Cardiovascular Health

Another paper (Need-based considerations for the role of low-dose aspirin along the CV risk continuum)⁽²⁾ builds on this research and assesses benefits of a more personalized approach to cardiovascular health by viewing a patient’s risk along a continuum instead of the existing binary approach. In particular, asymptomatic patients who are farther along the cardiovascular risk continuum, but not characterized as secondary risk, such as those with advanced subclinical atherosclerosis could benefit from interventions such as aspirin.

The research calls for a more personalized approach to assessing both the benefits of early intervention as well as risks. By considering individual risk factors, including the presence of subclinical atherosclerosis and the risk of bleeding, healthcare providers can better determine which patients may benefit most from an aspirin regimen.

Advancing Risk Assessment with Ultrasound

A just-published study (Carotid ultrasound-based plaque score for the allocation of aspirin for the primary prevention of cardiovascular disease events: The Multi-Ethnic Study of Atherosclerosis (MESA) and the Atherosclerosis Risk in Communities (ARIC) Study)(3) affirms the ability of carotid ultrasound, a widely accessible and affordable tool, to revolutionize identifying patients at risk for cardiovascular events. Traditionally, a coronary calcium score which assesses calcium build-up in the arteries, is done via a CT scan. This can be costly and inaccessible to many people.

The new research shows the ability of a new tool, the Carotid Plaque Score (CPS), which can be derived via ultrasound to accurately measure plaque build-up in arteries and help doctors assess where a patient may be on the risk continuum. Specifically, the study found that in patients with a CPS of 2 or more, the net benefit of aspirin therapy becomes evident, suggesting that the presence of at least moderate carotid plaque may improve the short-term allocation of aspirin therapy in primary prevention.

The Carotid Plaque Score can be particularly useful in resource-limited healthcare systems that do not yet have access to computed tomography technology. While coronary artery calcium (CAC) scoring is endorsed by the American College of Cardiology/American Heart Association (ACC/AHA) due to superior risk stratification and ease of quantification, carotid atherosclerosis quantification on ultrasound offers the benefits of no radiation, wider international availability, and the possibility of bedside application.

Aspirin: A Cornerstone in Cardiovascular Prevention

After 125 years, aspirin, renowned for its antiplatelet properties, remains a fundamental component in the prevention and management of ischemic heart disease. Despite the development of numerous pharmaceuticals, aspirin continues to be the only antiplatelet

agent recommended across the entire cardiovascular risk continuum. Its ability to inhibit platelet aggregation and reduce clot formation has made it indispensable in both primary and secondary prevention of cardiovascular disease (CVD).

Recent large-scale studies have demonstrated that traditional risk assessment and the binary classification into “primary” and “secondary” prevention may fail to identify a significant subset of high-risk patients who would likely benefit from aspirin. Patients with a higher CV risk and lower bleeding risk, would benefit from a personalized approach to CVD prevention. Future randomized clinical trials should enroll patients according to CAC score and/or carotid ultrasound or at least provide more detailed information about subclinical atherosclerosis, that is currently lacking even in the majority of trials. Clinician education is warranted to improve decision-making when determining patients at high cardiovascular risk who may benefit from aspirin therapy.

In the United States, aspirin is indicated for secondary prevention of cardiovascular events. However, in some countries outside the United States, aspirin is indicated for both primary and secondary prevention of cardiovascular events, while in others, it is only approved for secondary prevention.

Aspirin is not appropriate for everyone, so consumers should talk to their doctor before beginning an aspirin regimen. Globally, aspirin has different indications, and consumers should check with their doctor and local jurisdiction to determine the most appropriate course of action based on their specific country and medical history.

References:

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- 2) Santilli, F., Albrecht, G., Blaha, M., Lanas, A., Li, L., Sibbing, D.: Needs-based considerations for the role of low-dose aspirin along the CV risk continuum. *Am J Preventive Cardiology* 18 (2024) 100675 available online April 15, 2024. <https://doi.org/10.1016/j.ajpc.2024.100675>
- 3) Dzaye, O., Razavi, A., Dardari, Z., Nasir, K., Natsushita, K., Mok, Y., Santilli, F. Cobo, A., Johri, A., Albrecht, G., Blaha, M. Carotid ultrasound-based plaque score

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