

Study of Aspirin in Primary Prevention

Gurubhej Singh Thakral¹

Available online at: www.xournals.com

Received 30th September 2018 | Revised 18th October 2018 | Accepted 19th December 2018

Abstract:

Cardiovascular diseases (CDV) and cancer represent the foremost reason of morbidity and death globally. Prevention of these diseases plays vital role for decreasing the incidence of following conditions. Aspirin has a well-accepted role in prevention of cardiovascular diseases. In recent years some trials also suggested preventive effect of aspirin for various types of cancer. In developing countries aspirin is inexpensive and widely acceptable. The anticlotting effect of aspirin is helpful for main prevention for the reason that it possibly reduces the growth of blood clots that form as a result of decreased flow of blood at atherosclerotic plaques, thus reducing hypoxic harm to brain and heart tissue. The role of aspirin for cancer and cardiovascular diseases remain to be a cause of maximum discussion, with mainly international recommendations providing contradictory endorsements. Here, we evaluate the evidence in approval as well as in contradiction of aspirin therapy in prime prevention dependent on the evidence gathered with, including present linking data of aspirin connection with cancer protection.

Keywords: Aspirin, Primary Prevention, Diseases.

Authors:

1. Panjab University, Chandigarh, Panjab, INDIA

Introduction

At the end of 19th century a drug was imitative from salicylic acid and has been used widely over the years as an analgesic, anti-inflammatory, and antipyretic agent. Aspirin or acetylsalicylic acid, is the acetylated version of the natural product and the aim is to improve the tolerability of the drug. This drug is considered as most widely used for the purpose of medication. According to Agency for Healthcare Research and Quality (AHRQ) in 2007, stated that in United States around 20% of adults consumed aspirin regularly or every other day. This number is increasing to approximately 50% in the age range of 65 and more.

In certain subclasses of patients, e.g. patients having peripheral vascular disease, diabetes mellitus where the specific profits have not been fully elucidated use of aspirin. The secondary prevention benefits of aspirin treatment seems to outweigh the risks. In case of fit individuals where the threat of thrombotic cardiac event, the role of primary prevention of aspirin is not clear. In primary prevention, numerous present guidelines mention the use of aspirin but do not fully reflect the danger of bleeding.

Primary Prevention of Cardiovascular Diseases

In most developed countries the foremost reason of death is prevailing by the components of cardiovascular disease (CVD), consisting coronary heart disease (CHD) and stroke. It is promptly flatter the key reason of death in entire world. According to the World Health Organization, the estimation of annual global mortality because of CVD will approach to 25 million till 2030, and with which almost 80 % will happen in emerging republics.

For reducing the incidence of Cardiovascular diseases main prevention signifies an important world strategy. Most medical science recommended the approach that modification of lifestyle, changes in environmental, and reduction of related danger factors decrease the occurrence of these conditions. Based on the mechanism of action and initial medical benefits in secondary prevention the use of aspirin is widely studied.

The aspirin is considered as particular cyclo-oxygenase inhibitor which occlude thromboxane production in platelets for the purpose of hindering their combinations. It also occlude the prostaglandins synthesis in vascular wall in human

health which initiates vaso relaxation and maintain renal purpose and decrease linkage of platelet in vessel wall. Also considering the antiplatelet event, aspirin may be helpful for atherosclerosis and also shows a straight effect on atheroma plaque. These characteristics of aspirin have accordingly conveyed to explore the profits of this drug in cardiovascular disease prevention.

Primary Prevention for Cancer

The prophylactic aspirin focus on chances that it have a major part in the main stoppage of cancer, especially the focus on colorectal cancer. To govern the role of aspirin in the prevention of cancer, the US National Cancer Institute states that research is ongoing and the US Preventive Services Task Force (USPSTF) indorses in contrast to the tedious use of aspirin and non-steroidal anti-inflammatory drugs (NSAIDs) to stop colorectal cancer at normal risk in human beings. Although the factors underlying a possible chemo-preventive effect are undistinguishable. It is significant to know the threat of damaging effects when allowing an involvement for chief inhibition. The unwanted and harmful effects like bleeding and stomach pain can be seen as a result of taking aspirin.

Aspirin and Diabetes

Most of the researchers on aspirin dedicated specially on the patients suffering from diabetes. Individuals having diabetes include 2–4 fold bigger danger for suffering from the severe increasing cardiovascular actions which conclusively increases formation of coronary thrombus, worsened endothelial dysfunction and increased platelet reactivity than the one with age and sex without diabetes. The two major contributors are atherosclerosis and vascular thrombosis which basically recognized that platelets are considered as contributory. From both men and women having diabetes the platelets are usually oversensitive in vitro to platelet aggregating agents. The main mechanism of increased making of thromboxane, platelet aggregant and a potent vasoconstrictor. The synthesis of thromboxane is congested by aspirin with the acetylating platelet i.e. cyclo-oxygenase. This later used as both primary and secondary strategy to stop the events related with cardiovascular in both the diabetic and non-diabetic person.

Review of Literature

Sawanyawisuth, et al. (2006) Aspirin therapy is useful for major and minor prevention for actions of cardiovascular in patient with diabetes. According to the research, shows no adverse effects of the aspirin like upper gastrointestinal bleeding. In the case of hypertensive patient aspirin is not a strong recommendation but after controlling the blood pressure aspirin therapy may be a beneficial.

Berardis, et al. (2010) stated the findings contrast with basic principles and existing summaries of evidence. In main prevention of cardiovascular events they cannot recommend aspirin for all patients. Merits for main prevention of major cardiovascular events or humanity in people having diabetes could not be recognized in meta-analysis. Therefore in the threat of decrement of major cardiac actions not any type of significance is found with aspirin.

Kwok and Ioke, (2010) Aspirin has an important profits in numerous different clinical settings, but there are still numerous doubts occurred. Aspirin in main prevention of cardiovascular disease including diabetes mellitus and peripheral vascular disease is not maintained by the current indication. The aids of use of aspirin must be considered clinically against the threat of hostile events like intracranial and gastrointestinal bleeding.

Lei et al. (2010), for primary prevention aspirin is remain controversial. From the trail of meta-analysis indicates that healthy adults as well as patients having cardiovascular diseases will originate less protecting value from aspirin bearing in mind that they increased the possibility of severe bleeding happenings.

Yuxiang Dai and Junbo Ge, (2012) in aspirin control helpful in decreasing the chance for disease related with cardiovascular. There is also the point of consideration for patient with major threat of cardiovascular disease in future but simultaneously, the fact of aspirin must balance alongside the chances of some demerits. The aspirin is justified with the dependence of antiplatelet therapy as a prevention and management of cardiovascular diseases in clinical trials in numerous populations.

John G.F. Cleland, (2013) stated about no presence of trustworthy evidence that proven aspirin used in the present designed doses of approximately 50–100 mg/day causing benefit in any common kind of clinical setting. The aspirin prevents cardiovascular actions by decreasing the spread of thrombus are opposed by description that plaque hemorrhage occurred from vasa vasorum may also being the reason for plaque growth and uncertainty.

Halvorsen, et al. (2014) Suggested that aspirin should be considered for the primary prevention of CVD in both sexes at a level of risk of major cardiovascular events. Recommendation of aspirin in the primary prevention of acute MI and other atherothrombotic cardiovascular events in subjects of both sexes is guided properly by an assessment of the cardiovascular risk.

Nansseu and Noubiap, (2015) stated on the developing threat of most extra and intracranial bleeding connecting the aspiring therapy. The useful and not important significances of aspirin for main cardiovascular diseases stoppage, providers and sufferers should regularly consider aspirin use conducting entire strategy and designed patient related factors of risk. The threat basically evaluated dependence on cost benefited and proper developed tool of danger assessment and also define the proper thresholds.

Conclusion

The role of aspirin for the chief prevention of cardiovascular disease in patients is attractive because the drug is widely available. In secondary prevention the benefit of aspirin is clear but in case of primary prevention resultant is not clear. In fact, these review reentered features shows an increased threat of major gastrointestinal, extra and intracranial bleeding with constant aspirin therapy. Therefore the pros and cons of aspirin consider careful evaluated and examination before the treatment to examine aspirin benefits Further prospective studies are needed using other risk scores, including the dose of aspirin accompanying with a better threat/benefit ratio, the influence of risk factors on aspirin efficacy and safety, and the role of aspirin resistance.



References:

- Cleland, J. G. F. "Is Aspirin Useful in Primary Prevention?" *European Heart Journal*, vol. 34, no. 44, Jan. 2013, pp. 3412–3418.
- Dai, Yuxiang, and Junbo Ge. "Clinical Use of Aspirin in Treatment and Prevention of Cardiovascular Disease." *Thrombosis*, vol. 2012, 2012, pp. 1–7.
- Ittaman, Sunitha V., *et al.* "The Role of Aspirin in the Prevention of Cardiovascular Disease" *Clinical Medicine & Research*, Dec. 2014, Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC4317158/.
- Kittisak Sawanyawisuth, *et al.* "Aspirin Therapy as Primary Prevention in Hypertensive Patients at Srinagarind Hospital." *The Medical Association of Thailand = Chotmaiher Thangphaet*, Jan. 2006, pp. 1797–1801.
- Kwok, Chun Shing, and Yoon Loke. "Critical Overview on the Benefits and Harms of Aspirin." *Pharmaceuticals*, vol. 3, no. 5, 2010, pp. 1491–1506.
- Lei, Hong, *et al.* "The Benefit and Safety of Aspirin for Primary Prevention of Ischemic Stroke: A Meta-Analysis of Randomized Trials." *Frontiers in Pharmacology*, vol. 7, 2016.
- M, Xie, *et al.* "Aspirin for Primary Prevention of Cardiovascular Events in People with Diabetes: Meta-Analysis of Randomised Controlled Trials." *Clinical Governance: An International Journal*, vol. 15, no. 2, 2010,
- N. Nansseu, Jobert Richie, and Jean Jacques N. Noubiap. "Aspirin for Primary Prevention of Cardiovascular Disease." *Thrombosis Journal*, 4 Dec. 2015.
- Sutcliffe, Paul, *et al.* Aspirin in Primary Prevention of Cardiovascular Disease and Cancer: A Systematic Review of the Balance of Evidence from Reviews of Randomized Trials. *U.S. National Library of Medicine*, 2013, Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC3855368/.
- Torres, Yaniel Castro, *et al.* "Aspirin for Primary Prevention of Cardiovascular Diseases: Current Concepts, Unanswered Questions and Future Directions." *Hellenic Journal of Cardiology*, 13 Oct. 2015, pp. 461–474.