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The Efficacy and Safety of Statins in the Primary Prevention of Cardiovascular Disease

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Atherosclerotic plaques form in the blood vessels from particles of cholesterol. These plaques are a major cause of cardiovascular disease and have the ability to result in fatal cardiovascular events. In researching this topic, Published, the Cochrane Library, Dynamed, and Clinicalkey were all utilized in finding articles that were published from 2002 to 2018. There are several organizations with conflicting guidelines recommending the use of statin medications in the primary prevention of cardiovascular disease. The research evaluated determines data is inconclusive on the benefit of statin medications in this primary prevention as well as the safety of long-term statin use. Some experts have suggested that statins are overutilized, whereas others believe these medications are underutilized.

**Introduction**

- Atherosclerotic plaques form in the blood vessels from particles of cholesterol. These plaques are a major cause of cardiovascular disease (CVD) and have the ability to result in fatal cardiovascular events (Baron, 2017).
- Data is inconclusive and differ among many studies whether the use of statins is beneficial in primary prevention when evaluating the rate of CVD events, CVD mortality and all-cause mortality.
- HMG-CoA reductase is an enzyme involved in the first step in the formation of cholesterol in the liver. By inhibiting HMG-CoA (the mechanism of statin medications), the synthesis of cholesterol is reduced, thereby lowering the LDL cholesterol levels.
- Populations-based recommendations have been criticized as it may seem almost all patients can fall into one of the treatment groups. The use of statins in the prevention of cardiovascular events is disputed, but we do not know the exact cause of plaque formation or migration of plaques resulting in cardiovascular events. There is also lack of information on whether statin medications have deleterious long-term effects as the widespread use of statins has been somewhat recent in terms of medical research as statins were first approved for use in 1987 (Baron, 2017).
- There are discrepancies among recommendation guidelines on the prescription of statin medications in the primary prevention of CVD.
- The risk assessment tools do not take into consideration important factors such as diet and exercise, family history, or other comorbidities which may increase or decrease a patient’s risk of CVD.
- The research showed benefit in some populations, especially those with multiple risk factors. Other populations, such as those with diabetes, did not have a significant benefit which fails against that of the ACC/AHA recommendation guidelines.