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Statin Use in Primary Prevention of Atherosclerotic Cardiovascular Disease

There are five major guidelines on statin use for the primary prevention of atherosclerotic cardiovascular disease (ASCVD). These include the National Institute for Health and Care Excellence (NICE-2014), US Preventive Services Task Force (USPSTF-2016), Canadian Cardiovascular Society (CCS-2016), European Society of Cardiology/European Atherosclerosis Society (ESC/EAS-2016), and American College of Cardiology/American Heart Association (ACC/AHA-2018). All these guidelines are founded on the same evidence, but recommendations for who should be treated with statins differ quite significantly. The guidelines recommend different prediction models for ASCVD risk assessment and different risk thresholds and LDL-C criteria for prescription of statin therapy. To date, there has been no comparison as to which guideline correctly assigns statin therapy.

A recent study compared the sensitivity, specificity, and estimated number needed to treat to prevent 1 ASCVD event in 10 years from these five guidelines. ASCVD event was defined as nonfatal myocardial infarction, fatal coronary heart disease, and stroke.

45,750 patients aged 40 to 75 years were included in the study and were followed-up for 10.9 years. The primary outcome of the study was to prevent 1 ASCVD event according to the guideline criteria.

During the study period, 4156 ASCVD events were observed. 44% of patients were statin eligible with CCS, 42% with ACC/AHA, 40% with NICE, 31% With USPSTF, and 15% with ESC/EAS. Sensitivity and specificity for ASCVD events were 68% and 59% for CCS, 70% and 60% for ACC/AHA, 68% and 63% for NICE, 57% and 72% for USPSTF, and 24% and 86% for ESC/EAS. The number needed to treat to prevent 1 ASCVD using moderate-intensity and high-intensity statin therapy was 32 and 21 for CCS, 30 and 20 for ACC/AHA, 30 and 20 for NICE, 27 and 18 for USPSTF, and 29 and 20 for ESC/EAS. Overall, study findings showed the CCS, ACC/AHA, and NICE guidelines correctly assigned statin therapy to more individuals who later developed ASCVD compared with USPSTF and ESC/EAS guidelines.

The primary purpose of preventive statin guidelines is to reduce the burden of ASCVD. It is thus important that recommendations target treatment to as many people who are at risk of developing ASCVD. Findings from this study suggest that the CCS, ACC/AHA or NICE guidelines should be preferred for primary prevention.

Source: JAMA Cardiology
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