Statin use is associated with a lower risk of tuberculosis

Statins are a widely used class of medication that reduce the risk of coronary artery disorders and hypercholesterolaemia by targeting 3-hydroxy-3-methyl-glutaryl-coenzyme A (HMG-CoA) reductase.[1] Studies have shown that statins lower the production of pro-inflammatory cytokines, reduce platelet aggregability, prevent coagulation and reduce injury caused by oxidative stress.[2] The relationship between statin use and development of infection has been investigated for decades. Several meta-analyses have found that the use of statins may improve clinical outcome in patients with sepsis and pneumonia.[3] According to the World Health Organization (WHO), tuberculosis (TB) is one of the most important infectious diseases and in 2015, 10.4 million individuals developed the disease, resulting in 1.8 million deaths worldwide.[4] It has been shown that statin-mediated reduction in cholesterol levels within intracellular phagosomal membranes augments host protection against tuberculosis.[5] Between 2000 and 2013, Su *et al.*[6] used data from the Taiwan National Health Insurance Research Database to conduct a retrospective cohort study of 102 424 patients who were taking statins, and 202 718 matched controls. The two cohorts were monitored for incident TB disease and the statin and matched cohorts were observed for 571 568 and 1 027 385 person-years, respectively. Of the 305 142 subjects, 126 (0.41%) developed TB disease. A multivariate analysis revealed a reduced risk of TB disease among the statin cohort (hazard ratio (HR) 0.53; 95% confidence interval (CI) 0.47 - 0.61; $p<0.001$). In addition, statin use showed a dose-response relationship with the incident TB disease risk (<180 cumulative defined daily doses (cDDDs): HR 1.06; 95% CI 0.91 - 1.24; $p=0.477$; 180 - 365 cDDDs: HR 0.57;

95% CI 0.45 - 0.72; $p<0.001$; and >365 cDDDs: HR 0.27; 95% CI 0.22 - 0.33; $p<0.001$). The study showed that statin use was associated with a lower risk of incident TB disease compared with non-users, with a dose-dependent benefit on the risk.

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