Statin and risk of dementia in patients with heart failure

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Background: Non-cardiovascular morbidity and mortality of heart failure (HF) patients rose immensely in recent years, with dementia emerging as one of the key comorbidities. Our study aims to investigate the association between statin use and the risks of dementia and its subtypes in HF patients.

Methods: 104,295 patients with incident HF diagnosis from 2004 to 2018 were identified and followed up until December 2020. Inverse probability of treatment weighting (IPTW) was used to balance baseline covariates between statin users (N = 54,004) and non-users (N = 50,291). The primary outcomes were incident all-cause dementia, including subtypes of Alzheimer’s disease, vascular dementia, and unspecified dementia. Cox proportional-hazard model with competing risk regression was performed to estimate the sub-distribution hazards ratio (SHR) with corresponding 95% confidence intervals (CI) of the risks of all-cause dementia and its subtypes that are associated with statin use.

Results: Of all eligible HF patients, the mean age was 74.2 ± 13.6 years old and 52,511 (50.3%) were male. Over a median follow-up of 9.9 years (interquartile range [IQR]: 6.4 to 13.0), 10,031 (9.6%) patients were diagnosed with dementia, among which Alzheimer’s disease (N = 2,250), vascular dementia (N = 1,831), and unspecified dementia (N = 5,950) were quantified separately. After IPTW, statin use was associated with a 20% lower risk of incident dementia compared with non-use (multivariable-adjusted SHR 0.80, 95% CI 0.76 to 0.84). Stratified by subtypes of dementia, statin use was associated with a 27% lower risk of Alzheimer’s disease (SHR 0.72, 95%CI 0.63 to 0.82), 18% lower risk of vascular dementia (SHR 0.82, 95%CI 0.70 to 0.95), and a 20% lower risk of unspecified dementia (SHR 0.80, 95%CI 0.75 to 0.85).

Discussion: In patients with HF, statin use was associated with a significantly lower risk of all-cause dementia and its subtypes, including Alzheimer’s disease, vascular dementia, and unspecified dementia.