

47. Statins Reduce the Risk of Incident Dementia in Heart Failure Patients: A Territory-Wide Cohort Study in Hong Kong

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Background: Increasing number of heart failure (HF) patients diagnosed with dementia due to improved treatment and aging population. Data relating to the association of statin use on the risk of dementia incidence among patients with HF are sparse.

Methods: Using a previously validated territory-wide clinical information registry, Clinical Data Analysis and Reporting System (CDARS), statin use was ascertained among all eligible patients with HF (N=104,295) from 2004 to 2018 and was defined as more than 90 consecutive days use of statin after HF diagnosis. Inverse probability of treatment weighting (IPTW) was used to balance baseline covariates between statin users (N=54004) with statin non-users (N=50291). Competing risk regression with Cox proportional-hazard models was performed to estimate the risk of incident dementia associated with statin use. Further, statin use was modeled as a time-varying exposure to avoid immortal time bias.

Results: Of all eligible subjects, the mean age was 74.2 ±13.6 years, 52,511 (50.3%) were male. Over a median follow-up of 5.6 years (interquartile range [IQR]: 4.2 to 7.3), 10,031 (9.6%) patients were diagnosed with dementia including Alzheimer's disease (N=2,250), vascular dementia (N=1,831), and unspecified dementia (N=5,950). After IPTW, statin use vs. statin none use was associated with a 20% lower risk of dementia incidence (multivariable-adjusted sub-distribution hazard ratio [SHR]=0.80; 95% Confidence Interval [CI], 0.76 to 0.84) after accounting for all-cause mortality as a competing risk. Furthermore, statin use was significantly associated with a 27% lower risk of Alzheimer's disease (SHR=0.72, 95%CI, 0.63-0.82), 18% lower risk of vascular dementia (SHR=0.82, 95%CI, 0.70-0.95), 20% lower risk of unspecified dementia (SHR=0.80, 95%CI, 0.75-0.85) after accounting for competing risks.

Conclusion: Our study suggests that in patients with HF, statin use was associated with a significantly lower risk of overall incident dementia, and Alzheimer's disease, vascular dementia, unspecified dementia, separately.

Table 2. The impact of statin use on dementia incidence.*

	Cumulative incidence (No.)	Statin non-users (ref.)	Statin users SHR (95% CI) ^{¶¶}
Overall Dementia incidence	10031	1	0.80 (0.76-0.84)
Alzheimer's disease	2250	1	0.72 (0.63-0.82)
Vascular dementia	1831	1	0.82 (0.70-0.95)
Unspecified dementia	5950	1	0.80 (0.75-0.85)

* Inverse probability of treatment weighting (IPTW) was used to balance the covariates between statin users and non-users. A multivariable-adjusted model further accounted for the demographic covariates, comorbidities, and medications.

^{¶¶} We calculated the sub-distribution hazards ratio (SHR) and 95% confidence interval (95% CI) using the Fine Gray's test for equality of the cumulative functions between each exposure group after accounting for competing risks of all-cause mortality.

Clinical Implications: My study will help enable cardiovascular clinicians to pay more attention to non-cardiovascular outcomes, especially mental health, to take methods to prevent dementia in the early stage.