Cardiovascular Event Rates and Mortality among Secondary Prevention Hypercholesterolemia Patients in Japan

EPH36

Tomohiro Kondo[1)], Zhang Yilong[1)], Kentaro Yamato[1) 2)]

1) Otsuka Pharmaceutical Co., Ltd., Tokyo, Japan
2) Department of Public Health, Graduate School of Medicine, Juntendo University, Tokyo, Japan

Introduction

- Cardiovascular diseases, particularly stroke and coronary heart disease, constitute the leading causes of mortality in Japan[1)].
- Hypercholesterolemia represents a key modifiable risk factor, playing a critical role in the pathogenesis of atherosclerotic cardiovascular events[2)].
- Patients who survive a primary cardiovascular event remain at heightened risk for recurrent and potentially more severe events such as ischemic stroke (IS), myocardial infarction (MI) or unstable angina (UA)[3)].
- The aim of this study was to assess the risks of recurrent cardiovascular events and all-cause mortality in patients with a history of cardiac or cerebrovascular events, using real-world data.

Methods

- We conducted a retrospective cohort analysis using the Diagnosis Procedure Combination database from Medical Data Vision Co., Ltd. (Tokyo, Japan)[4)], covering the period from April 2008 to March 2024.
- Patients with hypercholesterolemia (E78.0) were included in the analysis.
- The index date was defined as the date of the first hospitalization due to MI (ICD-10: I21,I22), IS (ICD-10: I63), or UA (ICD-10: I20.0), based on inpatient and outpatient ICD-10 codes recorded in the database.
- Patients with a diagnosis of cancer (ICD-10: C00–43, C45-C97), liver cirrhosis (ICD-10:K70.3, K71.7, K74.3 K74.4-K74.6), or dialysis (J038) were excluded.
- Cardiovascular risk was evaluated among patients with comorbid diabetes mellitus(DM; ICD-10:E10-E14).

Study design

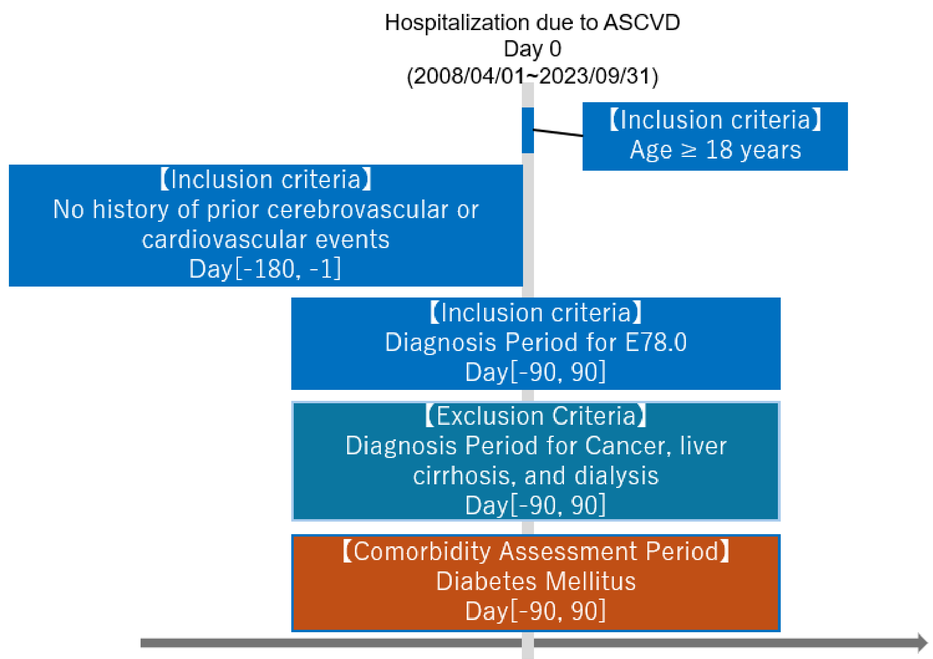

Figure1.Study design

Results

- A total of 212,363 patients were included in the analysis.
- Mean age of 70.56 years; 67.42% were male.

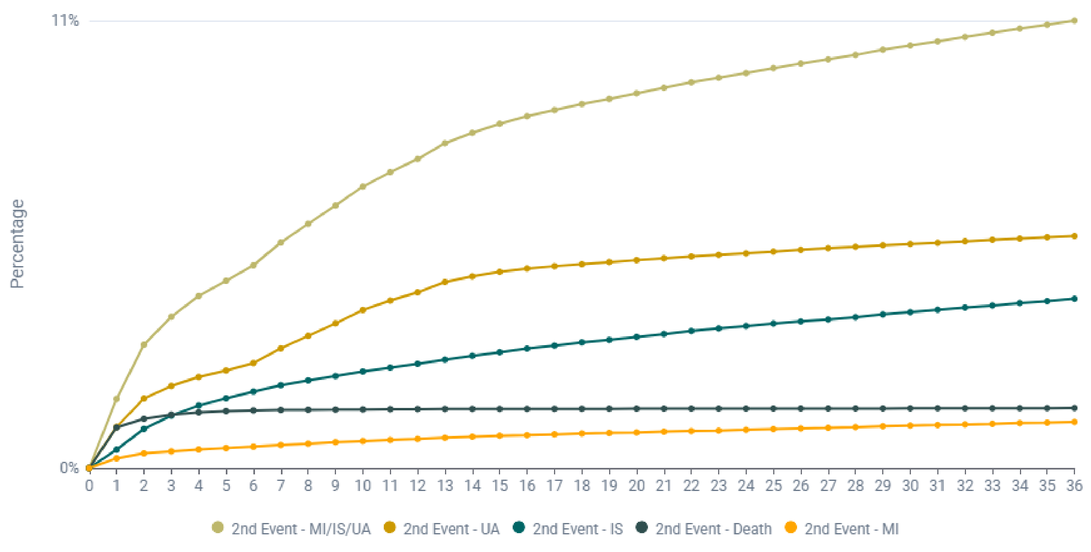

Figure2. Time-to-Event Analysis of Cardiovascular Outcomes Following Initial ASCVD(MI, IS, and UA)

Table 1. Cardiovascular Disease Risk Between Patients With and Without Diabetes Mellitus

	Time since prior event	Risk of 2nd event							
		Overall population				Patients with coexisting diabetes			
		Risk of IS	Risk of MI	Rsik of UA	Risk of Mortality	Risk of IS	Risk of MI	Rsik of UA	Risk of Mortality
Prior MI	< 12 months	0.57%	1.65%	2.81%	1.84%	0.18%	1.86%	0.54%	0.87%
	12 - 24 months	0.32%	0.43%	0.93%	0.01%	0.13%	0.52%	0.22%	0.28%
	> 24 months	0.26%	0.33%	0.47%	0.01%	0.12%	0.44%	0.22%	0.26%
Prior IS	< 12 months	5.19%	0.14%	0.35%	1.75%	5.08%	0.67%	0.46%	2.79%
	12 - 24 months	1.78%	0.10%	0.10%	0.01%	1.98%	0.35%	0.28%	1.02%
	> 24 months	1.24%	0.09%	0.06%	0.02%	1.38%	0.29%	0.26%	0.73%
Prior UA	< 12 months	0.42%	0.49%	16.95%	0.26%	0.46%	2.95%	17.67%	5.09%
	12 - 24 months	0.24%	0.18%	3.07%	0.01%	0.14%	1.01%	3.40%	1.18%
	> 24 months	0.22%	0.20%	1.17%	0.02%	0.13%	0.56%	1.33%	0.57%

Conclusion

Patients in Japan who experience a primary cardiovascular event face a substantial risk of recurrent events and death, highlighting the critical need for effective secondary prevention strategies.

Reference

1. Ministry of Health, Labour and Welfare. (2023). Summary of Vital Statistics (Final data), 2022 (in Japanese). Retrieved from https://www.mhlw.go.jp/toukei/saikin/hw/jinkou/kakutei22/
2. Joseph P, Leong D, McKee M, Anand SS, Schwalm JD, Teo K, et al. Reducing the Global Burden of Cardiovascular Disease, Part 1: The Epidemiology and Risk Factors. Circ Res. 2017;121(6):677-94
3. Murphy SA, Cannon CP, Wiviott SD, McCabe CH, Braunwald E. Reduction in recurrent cardiovascular events with intensive lipid-lowering statin therapy compared with moderate lipid-lowering statin therapy after acute coronary syndromes from the PROVE IT-TIMI 22 (Pravastatin or Atorvastatin Evaluation and Infection Therapy-Thrombolysis In Myocardial Infarction 22) trial. J Am Coll Cardiol. 2009 Dec 15;54(25):2358-62. doi: 10.1016/j.jacc.2009.10.005. PMID: 20082923.
4. Medical Data Vision Co., Ltd. MDV Database.; Available at: Medical Data Vision Co., Ltd. Accessed Oct 6, 2025.