

Recurrent stroke rate was higher than coronary heart disease rate in the first year after stroke but similar after the first year

Kaplan RC, Tirschwell DL, Longstreth WT Jr., et al. Vascular events, mortality, and preventive therapy following ischemic stroke in the elderly. *Neurology*. 2005;65:835-42.

Clinical impact ratings: GIM/FP/GP ★★★★★☆☆ Cardiology ★★★★★☆☆ Geriatrics ★★★★★☆☆ Neurology ★★★★★☆☆

QUESTION

In older patients with a first hospitalized nonfatal ischemic stroke, what is the long-term prognosis for stroke recurrence, coronary heart disease (CHD) events, and mortality?

METHODS

Design: Inception cohort followed for median 3.2 years.

Setting: The Cardiovascular Health Study cohort, recruited from 4 communities in the United States.

Patients: 546 patients ≥ 65 years of age (mean age 80 y, 59% women, 87% white) diagnosed with a first hospitalized nonfatal ischemic stroke between 1989 and 1 July 2001.

Prognostic factors: Stroke subtype, age, sex, race, previous CHD, atrial fibrillation, hypertension, diabetes, total cholesterol, and current smoking.

Outcomes: Stroke recurrence (fatal and nonfatal ischemic and hemorrhagic events), CHD events (fatal and nonfatal myocardial infarction and CHD mortality), and all-cause mortality.

MAIN RESULTS

At median 3.2-year follow-up after initial ischemic stroke, recurrent stroke incidence

(105.4/1000 person-y, 95% CI 79.7 to 139.5) was higher than CHD incidence (59.3/1000 person-y, CI 40.9 to 85.9) in the first year. After the first year, recurrent stroke and CHD event rates were similar (52.0/1000 person-y, CI 41.2 to 65.6 vs 46.5/1000 person-y, CI 36.6 to 59.1). 313 patients (57%) died. Patients with cardioembolic stroke had the highest rates of recurrent stroke (86.6/1000 person-y, CI 60.6 to 124.9), CHD incidence (57.9/1000 person-y, CI 37.7 to 88.7), and all-cause mortality (185.4/1000 person-y, CI 147.7 to 232.9); patients with indeterminate stroke had the lowest CHD event rates (47/1000 person-y, CI 36.1 to 61.2); and patients with lacunar stroke had the lowest rates of recurrent stroke (43/1000 person-y, CI 24.4 to 75.8) and all-

cause mortality (119.3/1000 person-y, CI 86.5 to 164.7). Age predicted death and CHD, male sex predicted death, and previous diabetes predicted recurrent stroke and CHD (Table).

CONCLUSION

In older patients with a first hospitalized nonfatal ischemic stroke, the recurrent stroke rate was higher than coronary heart disease event rates in the first year, but the rates were similar after the first year.

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Risk factors for death, coronary heart disease (CHD), and recurrent stroke in older patients with a first stroke at median 3.2-year follow-up

Risk factors	Outcomes (hazard ratio, 95% CI)		
	All-cause mortality	CHD events	Recurrent stroke
Age per 10 y	2.52 (2.05 to 3.10)	1.62 (1.09 to 2.41)	1.0 (0.70 to 1.45)
Women vs men	0.78 (0.61 to 0.99)	0.67 (0.43 to 1.04)	0.99 (0.66 to 1.48)
Previous diabetes	1.26 (0.97 to 1.64)	1.70 (1.09 to 2.64)	1.59 (1.07 to 2.37)

COMMENTARY

The study by Kaplan and colleagues confirms the known high risk for early recurrent stroke in the year after a first ischemic stroke, presumably reflecting persistence of an active and inadequately treated source of atherothrombembolism or cardiogenic embolism (1). It also confirms the subsequently steady and lower risk for recurrent stroke after the first year, which parallels that of CHD events since inception (2). This presumably reflects continued exposure to causal risk factors for atherosclerosis.

The estimates of early risk for recurrence are lower than those of other community-based studies, perhaps because of incomplete ascertainment (1). The estimates of longer-term risk are slightly higher than in other studies (2), perhaps because patients < 65 years (with a better prognosis) were excluded and patients were inadequately treated with what are now known to be effective treatments (e.g., antiplatelet therapy, lowering blood pressure and cholesterol for patients in sinus rhythm, and warfarin

for patients in atrial fibrillation).

This study highlights that patients with ischemic stroke are at high and sustained risk for recurrent vascular events of the brain and heart. Prescription of, and compliance with, effective stroke prevention strategies are likely to substantially reduce these risks.

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References

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