Risks for myocardial infarction or nonstroke vascular death after ischemic stroke or transient ischemic attack were each 2% per year

Touzé E, Varenne O, Chatellier G, et al. **Risk of myocardial infarction and vascular death after transient ischemic attack and ischemic stroke: a systematic review and meta-analysis.** Stroke. 2005;36:2748-55.

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

QUESTION

In patients with ischemic stroke or transient ischemic attack (TIA), what are the risks for myocardial infarction (MI) or nonstroke vascular death?

METHODS

Data sources: MEDLINE (to March 2005), Cochrane Database of Systematic Reviews (issue 4, 2004), and bibliographies of included studies and relevant reviews.

Study selection and assessment: Randomized controlled trials (RCTs) or prospective cohort studies that were published in English since 1980, included ≥ 100 patients with ischemic stroke or TIA followed for ≥ 1 year with < 5% loss to follow-up, and reported incidence of MI or nonstoke vascular death. Studies were excluded if they involved patients with mainly hemorrhagic stroke or an unusual cause of stroke, or highly selected populations. 25 RCTs and 14 cohort studies (n = 65 996) met the selection criteria. 2 reviewers independently determined eligibility of studies using a standardized form.

Outcomes: Nonfatal, fatal, and total MI, and nonstroke vascular death.

MAIN RESULTS

Mean age ranged from 49 to 77 years, and the proportion of men ranged from 41% to 82%. Mean duration of follow-up was 3.5 years (range 1 to 10 y). The estimated annual risk for MI was 2.2% and for nonstroke vascular death was 2.1% (Table). Significant heterogeneity existed among studies for all outcomes.

CONCLUSION

In patients with ischemic stroke or transient ischemic attack, risks for myocardial infarction or nonstroke vascular death were each approximately 2% per year.

Annual risks for myocardial infarction (MI) and nonstroke vascular death in patients with ischemic stroke or transient ischemic attack followed for mean 3.5 years*

Outcomes	Number of studies (*n*)	Annual risk (range in individual studies)	Pooled annual risk (95% CI)†
Total MI	22 (50 016)	0.5% to 4.7%	2.2% (1.7 to 2.7)
Nonfatal MI	16 (31 917)	0.4% to 3.2%	0.9% (0.7 to 1.2)
Fatal MI	19 (39 573)	0.1% to 3.7%	1.1% (0.8 to 1.5)
Nonstroke vascular death	29 (56 547)	0.4% to 3.9%	2.1% (1.9 to 2.4)

*CI defined in Glossary.
†Estimated by weighted meta-regression using a random-effects model.

COMMENTARY

Patients with symptomatic cerebrovascular disease often have undiagnosed coronary artery disease (1). The meta-analysis by Touzé and colleagues adds to our understanding of the prognosis of such patients by providing estimates of their risk for nonstroke vascular death and MI after stroke or TIA.

The meta-analysis used a rigorous search strategy and examined a large sample size, enabling precise estimates to be made. The authors used eligibility criteria to select for larger, stronger studies with high follow-up rates, but did not further assess the quality of the included studies. The significant heterogeneity noted for the outcomes raises concerns regarding the strength of the pooled results. For nonstroke vascular death, the authors report that the heterogeneity was caused by differences in studies done before and after 1990; more recent studies found lower event rates, possibly because of improved secondary prevention.

Because the authors did not have access to patient-level data for all studies, meta-regression was used to identify risk factors for coronary events. None of the traditional cardiac risk factors (e.g., diabetes mellitus) was found to predict events. Given the limitations of the meta-analysis and the established relation between these risk factors and acute coronary events in other populations, the significance of the lack of an association cannot be determined from this study (2).

Do the estimates of MI and nonstroke vascular death of 2.2% and 2.1% per year, respectively, change patient care? The results confirm that patients with acute stroke or TIA are at substantial cumulative risk over time and emphasize the need to provide aggressive secondary prevention, an approach that remains inconsistently practiced (3). The study does not identify which stroke or TIA subgroups are at highest risk and should have screening for coronary artery disease. Whether to perform testing remains an individualized decision based on symptoms and established cardiac risk factors.

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References

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