Prognostic Role of Hypertriglyceridemia in Patients With Stroke of Atherothrombotic Origin

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Abstract

Background and Objectives: Hypertriglyceridemia is perceived to promote atherosclerotic pathology, but its role in stroke has not been well defined. We aimed to assess the contribution of hypertriglyceridemia to residual vascular risk in patients with atherothrombotic stroke.

Methods: The Tokyo Women's Medical University Stroke Registry is an ongoing prospective, observational registry, in which 870 patients with acute ischemic stroke or TIA within 1 week of onset were consecutively enrolled and followed up for 1 year. Hypertriglyceridemia was defined as serum triglycerides levels of ≥150 mg/dL under fasting conditions. Significant stenosis of the cervicocephalic arteries was defined as having 50% or greater stenosis or occlusion. The primary outcome was major adverse cardiovascular events, including nonfatal stroke, nonfatal acute coronary syndrome, and vascular death.

Results: Of 870 patients (mean age, 70.1 years; male, 60.9%), 217 (24.9%) had hypertriglyceridemia. High triglycerides levels were significantly associated with an increased prevalence of intracranial artery stenosis, particularly in the anterior circulation, rather than extracranial artery stenosis. Patients with hypertriglyceridemia had a greater risk of major adverse cardiovascular events than those without (annual rate, 20.9% vs. 9.7%; $P<0.001$), even after adjustment for potential confounders, including baseline low-density lipoprotein cholesterol and statin use (adjusted hazard ratio, 2.46; 95% confidence interval, 1.62-3.74).

The higher risk of vascular events in hypertriglyceridemia versus non-hypertriglyceridemia patients was observed among patients with stroke of atherothrombotic origin (n=174; annual rate, 35.1% vs. 14.2%; P=0.001), those with significant intracranial artery stenosis (n=247; annual rate, 29.9% vs. 14.7%; P=0.006), and those with significant extracranial carotid artery stenosis (n=123; annual rate, 23.0% vs. 9.4%; P=0.042). In contrast, hypertriglyceridemia was not predictive of recurrent vascular events in patients with cardioembolic stroke (n=221; annual rate, 19.1% vs. 10.5%; P=0.18).

Discussion: Hypertriglyceridemia is an important modifiable risk factor that drives residual vascular risk in patients with stroke of atherothrombotic origin, even while on statin therapy.

Trial Registration Information: The Tokyo Women's Medical University Stroke Registry is registered at UMIN000031913 (https://upload.umin.ac.jp).

Classification of Evidence: This study provides Class I evidence that in patients with atherothrombotic stroke, hypertriglyceridemia is associated with an increased risk of major cardiovascular events.

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