

# **An Increased Risk of Stroke among Panic Disorder**

## **Patients: A Three-year Follow-up Study**

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### **Abstract**

A common anxiety disorder, PD affects up to 5% of the population at some point in life.<sup>1</sup> A dramatic rise in panic attacks from 5.3% to 12.7% has been detected in recent decades.<sup>2</sup> Diagnosis is based on recurrent unexpected panic attacks, which consist of sudden onset of intense fear or discomfort associated with several cognitive and somatic symptoms. Many PD symptoms mimic features of CVDs (for example, sweating, palpitations, paresthesia, chest pain, hot flashes, shortness of breath, and choking sensation), and can therefore be difficult to differentiate. Panic attacks usually are accompanied by sympathetic nervous system arousal, and the resulting effects on cardiovascular regulation, such as increased heart rate and blood pressure, imply risk for CVD, including stroke.<sup>3–6</sup> Compelling evidence shows that PD is commonly present with CVD, especially cardiovascular death. Higher than expected risk of cardiovascular–cerebrovascular mortality has been observed among patients with PD or paniclike anxiety both in retrospective<sup>7–9</sup> and prospective studies.<sup>10,11</sup> More recently, the hazard ratio among postmenopausal women for PD associated with end point coronary heart disease or stroke combined was found to be 3.08 (95% CI 1.60 to 5.94).<sup>12</sup> Although an association between CVD and PD has been observed, the real relation of PD to CVD remains unclear. Previous studies about whether PD confers risk for CVD or stroke had small sample sizes with restricted statistical power, patients selected from specific settings such as cardiac or psychiatric clinics, and depended on patients' self-reported cardiovascular–cerebrovascular condition. No prior study has specifically examined the association between PD and stroke using thorough medical assessments in a population-based study. Our study was designed to use a nationwide, population-based dataset to explore whether PD increases the risk for stroke during a 3-year follow-up period.