

Excessive Atrial Ectopy and Short Atrial Runs Increase the Risk of Stroke Beyond Incident Atrial Fibrillation



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CME Objective for This Article: After reading this article, the reader should be able to: 1) identify cardiovascular risk factors associated with high-grade atrial ectopy; 2) discuss the relationship between clinical risk factors and development of ischemic stroke; 3) discuss the clinical significance of increasing high-grade atrial ectopy (excessive atrial ectopy) in relation to atrial fibrillation and ischemic stroke (linear and nonlinear associations); 4) discuss in which populations or groups excessive number of premature atrial contractions (PACs) has shown to be associated with an increased risk of stroke and how large the magnitude of risk is compared to similar patients with atrial fibrillation; 5) explain how recent studies have defined "excessive atrial ectopy"; and 6) discuss whether there are any guideline-recommended therapies with respect to excessive atrial ectopy.

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ABSTRACT

BACKGROUND Approximately 30% of ischemic strokes have an unknown cause. Increased atrial ectopy (AE) increases the risk of atrial fibrillation (AF), but the risk of stroke in patients with increased AE is unknown.

OBJECTIVES This study aimed to examine whether increased AE and short atrial runs increase the risk of stroke beyond incident AF.

METHODS Data were collected during a 15-year follow-up of the Copenhagen Holter Study cohort with 678 men and women between 55 and 75 years of age, with no earlier history of cardiovascular disease, stroke, or AF. Study subjects underwent 48-h ambulatory electrocardiography, fasting blood tests, and clinical examination. Excessive supraventricular ectopic activity (ESVEA) was defined as the presence of either ≥ 30 premature atrial contractions (PACs)/hour daily or any runs of ≥ 20 PACs.

RESULTS Ninety-nine subjects (15%) demonstrated ESVEA. After adjusting for baseline risk factors, ESVEA was associated with ischemic stroke when censoring subjects at time of AF (hazard ratio [HR]: 1.96; 95% confidence interval [CI]: 1.10 to 3.49) or when modeling AF as a time-varying exposure (HR: 2.00; 95% CI: 1.16 to 3.45). Among subjects with ESVEA who developed a stroke, 14.3% had diagnosed AF before their stroke. The incidence of stroke in subjects with ESVEA and a CHA₂DS₂-VASc (congestive heart failure, hypertension, age 75 years or older, diabetes mellitus, previous stroke or transient ischemic attack, vascular disease, age 65 to 74 years, female) score of ≥ 2 was 2.4% per year, comparable to the risk observed in AF. In day-to-day analysis, ESVEA was a consistent finding.

CONCLUSIONS ESVEA was associated with an increased risk of ischemic stroke beyond manifest AF in this middle-aged and older population. Stroke was more often the first clinical presentation, rather than AF, in these study subjects. (J Am Coll Cardiol 2015;66:232-41) © 2015 by the American College of Cardiology Foundation.

Despite meticulous research for the etiology of ischemic stroke, 25% to 30% of strokes remain unexplained and are consequently labelled cryptogenic (1,2). Occult atrial fibrillation (AF) is thought to be partly responsible for this phenomenon (3-9). However, paroxysmal AF often goes undetected as a result of the heterogeneous presentation with no symptoms, a short duration, and episodic runs (10). This issue has prompted new strategies to detect incident AF, especially through prolonged electrocardiogram (ECG) monitoring (3-9). In recent years increased atrial ectopy (AE) has been shown to be associated with a higher risk of AF (11-15). Some studies have reported an association with stroke as well, but the increased risk is thought to be secondary to subsequent AF (11,12). The risk of stroke in persons with increased AE is unknown, and it is also not known whether these persons will present with clinical AF before having a stroke. This study investigated the independent

association between increased AE and ischemic stroke.

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We hypothesized that excessive supraventricular ectopic activity (ESVEA) independently increases the risk of ischemic stroke, comparable to AF.

METHODS

COPENHAGEN HOLTER STUDY. The Copenhagen Holter Study included patients enrolled between April 1998 and June 2000. Follow-up was performed in 2013, thus including up to 15-years of follow-up in some patients. The aim of the follow-up study was to address the value of 48-h Holter recording in relation to other risk factors, in the assessment of future adverse events in terms of AF, ischemic stroke, and mortality in middle-aged and older men and women. Information about the study protocol and the selection procedures

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