Heart Failure and Stroke

Peter Appelros, MD, PhD

See related article, pages 1715–1719

Heart failure (HF) has been recognized as a risk factor for stroke since the 70s. Results from a population-based stroke study have shown that HF is an independent risk factor for severe strokes. It seems likely that many HF-related strokes are embolic, but few studies have evaluated the use of anticoagulation therapy in these patients. At present we are awaiting the results of 2 studies, which aim at defining the optimum antithrombotic therapy for patients with HF.

Ejection fraction (EF) is an echocardiographic measure of left ventricular systolic function. Normal value of EF is 50% to 70%, but only half of individuals having an EF ≤30% have clinical overt HF. More uncommonly, clinical HF may exist in diastolic relaxation failure when EF is normal. At which point does the stroke risk begin to increase? Few studies have been made in this area. In the Survival and Ventricular Enlargement study (SAVE), there was an 18% increase in the risk of stroke for every reduction of 5% in EF. It is not fully clear, however, within which limits this relationship is valid. A limitation to the generalizability of that study is that all patients with moderate to severe dysfunction (EF ≤40%) were included. A 58% increase of thromboembolic events for every 10% decrease in EF was found in women, but not in men. That study was retrospective.

New studies within this area are therefore welcome. In this issue of Stroke, Hays et al present a case-control study. EF was assessed in 270 patients with a first ischemic stroke and compared with 288 age-, gender-, and race-matched controls. They found that left ventricular dysfunction, even of mild degree (EF 41% to 50%), was associated with an increased risk of ischemic stroke. Moreover, in contrast with previous studies, they found that the risk of stroke was at least as high for patients with mild dysfunction (EF 41% to 50%), as for patients with moderate to severe dysfunction (EF ≤40%). If these results can be confirmed, they may lead to a more active attitude toward evaluation of heart function in stroke patients.

Ongoing studies may show that such patients benefit from anticoagulation and/or medical treatment aimed at HF itself.

Case-control studies are liable to bias. The characteristics of cases and controls may differ in relation to the base population, which leads to cases and controls becoming inferiorly matched. That would happen if some patients, eg, because of social class, were less likely to be cases (admission bias). Also, control candidates may choose not to take part in the study. If they decline to be controls, we know at least that in this respect they differ from those who accept. We don’t know, however, whether this decision is associated with the “exposure”, or other factors that matters for the study. Authors tend to say “There is no reason to believe that the exposure (in this context: heart failure) have affected the controls’ willingness to participate in the study”. I say: there is every reason to believe that, unless otherwise proven! The most remarkable result of the present study is that mild reduction of EF raises the risk of stroke as much as moderate to severe reduction. This is in contrast with previous studies. The result is interesting and calls for further studies in this area. Until the findings have been confirmed, however, they must be interpreted with caution. Bias has played tricks on us before, and it will again.

References


Key Word: case control studies; cerebrovascular accident; heart failure, congestive
Heart Failure and Stroke
Peter Appelros

Stroke. 2006;37:1637; originally published online June 1, 2006;
doi: 10.1161/01.STR.0000227197.16951.2b
Stroke is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2006 American Heart Association, Inc. All rights reserved.
Print ISSN: 0039-2499. Online ISSN: 1524-4628

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://stroke.ahajournals.org/content/37/7/1637

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in Stroke can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Stroke is online at:
http://stroke.ahajournals.org//subscriptions/