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## REDUCING STROKE RISK IN ATRIAL FIBRILLATION PATIENTS

The Stroke Prevention and Atrial Fibrillation (SPAF) trial supports that the risk of stroke in the elderly with atrial fibrillation is high and that either aspirin or warfarin can reduce stroke rate in these patients. The trial also raises questions about diminishing response to aspirin with advancing age. Phase II of the trial, now ongoing, will address this issue.

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### STROKE AND ATRIAL FIBRILLATION

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According to several epidemiologic reports, the risk of stroke among patients with atrial fibrillation is six times that of the normal population. Among patients who have had a stroke, about 15% also have atrial fibrillation, although this relationship varies with age. For example, data from the Framingham Heart Study show that, among patients over age 70 with stroke, 21% also had atrial fibrillation; and 36% of stroke patients over age 80 had atrial fibrillation.

The average age of onset of atrial fibrillation is about 65 years. With atrial fibrillation occurring in more than 1 million persons, and with a stroke incidence of 5% per year in this age group, we can calculate that about 75,000 strokes per year are related to non-valvular atrial fibrillation. Because of the magnitude of the problem, the National Institutes of Health began the Stroke Prevention and Atrial Fibrillation Trial in 1987 to compare the effects of warfarin vs placebo and aspirin vs placebo on the incidence of stroke.

All 1,330 patients enrolled in the study had electrocardiographically documented atrial fibrillation within the year preceding entry into the study. One third of the patients had intermittent atrial fibrillation. Patients were excluded if they needed antithrombotic therapy; had mitral stenosis, prosthetic valves, recent myocardial infarction; or had any other problem that precluded placebo therapy.

Group I patients—those considered candidates for anticoagulation—were randomized to either warfarin, prothrombin time ratio 1.3 to 1.8; aspirin, 325 mg/d; or placebo. Group II patients—in whom anticoagulant

therapy was contraindicated or refused—were randomized to either aspirin or placebo.

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### SIGNIFICANT FINDINGS

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The study was stopped in November 1989 when it was found that the stroke rate in patients treated with warfarin was 67% lower than in the placebo group. The patients treated with aspirin had a reduced stroke rate of only 42% compared to placebo.

Some researchers suspect that the risk of stroke in the presence of atrial fibrillation is greatest immediately after the development of a clot, when it is most friable. The SPAF showed that the risk of stroke actually occurs at a fairly steady pace. In general, the SPAF data demonstrated that the stroke rate among non-rheumatic atrial fibrillation patients is 6% per year and that one enteric coated aspirin per day is surprisingly capable of significant reduction in stroke rate. Warfarin, however, was even more effective in preventing stroke, and in this study was associated with a low and acceptable bleeding risk. As warfarin-eligible patients were a subset of all aspirin-eligible patients, direct comparison of warfarin and aspirin awaits SPAF II results.

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### RECOMMENDATIONS

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The SPAF findings suggest that most patients over age 60 who have intermittent or chronic atrial fibrillation should be treated with either warfarin or aspirin to prevent stroke.

The SPAF II trial is currently enrolling patients in a direct comparison of warfarin and aspirin. Enrollment should be completed by the summer of 1991 and some results available in 1992. SPAF II will directly compare the effectiveness of aspirin and warfarin in preventing strokes and attempt to explain the diminishing effectiveness of aspirin among patients over age 75.

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## MANAGING CONGENITAL HEART DEFECTS IN ADULTS

**C**ongenital heart defects become adult problems when they escape recognition in childhood or when the absence of symptoms influences those involved not to opt for early treatment.

### ATRIAL SEPTAL DEFECTS: AUSCULTATE CAREFULLY

Atrial septal defect (ASD) is a quiet disease, unlikely to be suspected from symptoms until the patient is well into adulthood. Even a 20-year-old with a significant left-to-right shunt can appear and feel normal. On the other hand, some patients may present at age 20 or 30 with irreversible pulmonary vascular disease.

The diagnosis requires careful auscultation. The key is to listen for a persistent "split" in the second heart sound, which is caused by right ventricular dilatation. Because it takes longer for electrical activation to course through the dilated right ventricle, the pulmonary valve remains open longer. In children, the sound is often dismissed as a functional or innocent murmur and the diagnosis is not made until late in adulthood when symptoms develop.

In some cases, a diastolic rumble from increased flow across the tricuspid valve makes the diagnosis easier, but this is not present in most cases. Usually, the murmur is of low intensity and is difficult to appreciate. Exercise may bring out the diastolic rumble.

A lateral chest radiograph will demonstrate volume overload on the right side of the heart and certainly will prompt additional tests. The diagnosis can be made with either transthoracic or transesophageal echocardiography. Catheterization is not indicated unless surgery is being considered. If the patient is elderly, it makes sense to rule out coronary artery disease before considering surgery for a possible ASD.

The right atrial dilation that occurs with ASD eventually creates a tendency for premature atrial contrac-

tions (PACs). With enough dilatation, the atrial ectopy can lead to atrial fibrillation. This finding is especially common after age 40. On the other hand, although some patients may remain in sinus rhythm as late as age 70, the right ventricle can eventually fail because of chronic volume overload. These patients respond well to operative treatment.

The defect can be closed with a suture technique or a patch of either prosthetic or pericardial tissue. Operative mortality is low; the risk of perioperative cerebrovascular accidents secondary to clot formation can be minimized with coumadin or other anticoagulant therapy that continues for at least 6 months. The wave of the future for ASD correction is nonsurgical closure using a catheter-delivered device. This technique is already being used in some centers; complications are few, but the procedure is lengthy.

With late ASD closure, the patient remains at risk of atrial fibrillation because the right atrium will not return to normal size. Atrial fibrillation is not a problem when closure is achieved during childhood.

### PATENT DUCTUS ARTERIOSUS: CORRECT EARLY

Patent ductus arteriosus (PDA), although relatively easy to diagnosis, tends to elude treatment during childhood because the patient is usually asymptomatic. However, significant symptoms can develop when these individuals reach their 50s or 60s.

The diagnosis is made by recognizing a continuous infraclavicular murmur at the second interspace on the left. Chronic heart failure symptoms develop from volume overload. A chest radiograph will demonstrate a large pulmonary artery and left heart dilation caused by the left to right shunt. With age, calcium deposits occur in the PDA.

A symptomatic patient is a candidate for operative correction unless he has high pulmonary artery pressure. Patients with PDA are at risk of subacute bacterial endocarditis, particularly in the second and third decades—another reason for closure of the defect, regardless of its size.

Although catheter-delivered devices are being used to close PDAs, the standard operative procedure is division and ligation, and most patients require cardiopulmonary bypass because of calcium in the PDA. Patients who have irreversible pulmonary vascular disease do not respond well to surgical treatment.

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