Atrial septal defect repair

(AUGUST 2000)

TO THE EDITOR: I enjoyed reading the excellent article by Moodie and Sterba on the long-term outcome following atrial septal defect repair in adults,[1] and would like to comment on the problem of stroke.

As the authors mentioned, the high incidence of stroke during the late postoperative and long-term follow-up periods is worrisome. Both Berger et al[2] and Gatzoulis et al[3] reported that the age of patients without atrial flutter or fibrillation before and after atrial septal defect repair was significantly lower than that of patients with these arrhythmias. Therefore the message is clear: all atrial septal defects should be closed regardless of the patient's age in order to prevent atrial flutter and fibrillation and their devastating sequelae.[4]

Thromboembolism after surgical repair of an atrial septal defect in an adult can occur in the early postoperative period.[5] Stroke after successful surgical closure of an atrial septal defect in an adult is most unfortunate and can be debilitating. Whether or not a maze procedure should be employed at the time of surgical repair of an atrial septal defect in an adult with atrial fibrillation,[6] it is important to emphasize the long-standing policy of giving early postoperative anticoagulation in patients 35 years of age or older at the time of repair of an atrial septal defect and continuing it at least 6 months.[7]

Another important factor is the duration of atrial flutter or fibrillation before surgery. Wijffels et al[8] stated that "atrial fibrillation begets atrial fibrillation," ad therefore longer preoperative duration of atrial flutter or fibrillation increased the probability that the abnormality would remain after repair of the atrial septal defect. Further, several studies documented a poor outcome of medical and electrical treatment of chronic atrial fibrillation in patients with severely enlarged atria.[9] Therefore, to reduce the morbidity associated with atrial flutter or fibrillation, timely closure of atrial septal defects is essential.

TSUNG O. CHENG, MD
George Washington University
Washington, DC

REFERENCES

1. **Moodie DS, Sterba R.** Long-term outcomes excellent for atrial septal defect repair in adults. Cleve Clin J Med 2000; 67:591–597.
2. **Berger F, Vogel M, Kramer A, Alexi-Meskishvili V, Weng Y, Lange PE, Hetzer R.** Incidence of atrial flutter/fibrillation in adults with atrial septal defect before and after surgery. Ann Thorac Surg 1999; 68:75–78.
3. **Gatzoulis MA, Freeman MA, Siu SC, Webb GD, Harris L.** Atrial arrhythmia after surgical closure of atrial septal defects in adults. N Engl J Med 1999; 340:839–846.
4. **Cheng TO.** Stroke after repair of atrial septal defect. Ann Thorac Surg 2000; 69:981.
5. **Cheng TO.** Early thromboembolism after atrial septal defect repair. J Thorac Cardiovasc Surg 1999; 99:758.
6. **Sandoval N, Velasco VM, Orjuela H, et al.** Concomitant mitral valve or atrial septal defect surgery and the modified Cox-maze procedure. Am J Cardiol 1996; 77:591–596.
7. **Kirklin JW.** Early thromboembolism after atrial septal defect repair [editor's comment]. J Thorac Cardiovasc Surg 1990; 99:758.
8. **Wijffels MCEF, Kirchhof CJHJ, Dorland R, Allessie MA.** Atrial fibrillation begets atrial fibrillation: a study in awake chronically instrumented goats. Circulation 1995; 92:1954–1968.
9. **Van Gelder JC, Crijns HJ, Van Gilst WH, Verwer R, Lie KT.** Prediction of uneventful cardioversion and maintenance of sinus rhythm from direct-current electrical cardioversion of chronic atrial fibrillation and flutter. Am J Cardiol 1991; 68:41–46.

IN REPLY: I would like to thank Dr. Cheng for his comments. We agree that all atrial septal defects should be closed either surgically or in the cath lab, but we are not sure that in closing the defect one can prevent atrial flutter. As Dr. Cheng knows, in patients who have atrial fibrillation before surgery, atrial fibrillation may persist despite surgery to close the defect, which our data clearly demonstrate.

A disturbing finding, which we described in our article, was that of 153 children who underwent closure of atrial septal defects in childhood, 6% developed atrial fibrillation over a 25-year follow-up. Our article again suggests that a right atriotomy may cause a right atrial circuit that travels counterclockwise along the antrolateral right atrium and may be the source of atrial fibrillation. This certainly needs further investigation.

We agree with Dr. Cheng that in the older patient, thromboembolism occurs early after atrial septal defect surgery and that a patient over 35 to 40 years of age should be on anticoagulants for at least 6 weeks and perhaps for 3 to 6 months.

Preoperative atrial fibrillation is definitely a risk for immediate postoperative and long-term fibrillation. We therefore agree that "atrial fibrillation begets atrial fibrillation," but we suspect that even with timely and early closure, a significant number of these patients will still be at risk for late atrial arrhythmias unless we modify the way we do right atriotomies.

DOUGLAS S. MOODIE, MD, MS
Cleveland Clinic