

sure to protease inhibitors must be viewed in the context of the underlying cardiovascular risk of each patient. A doubling of the risk over 5 years of protease-inhibitor exposure will not raise the absolute risk dramatically in a person who is otherwise at low risk for myocardial infarction, whereas it could result in a substantial increase in the absolute risk for a patient who is already at high risk. Extended follow-up (beyond 6 years) in the DAD study will permit us to answer questions regarding the long-term safety profile of this drug class.

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**THE EDITORIALIST REPLIES:** The DAD Study Group's article and my accompanying editorial are in agreement that the use of protease inhibitors is associated with an increased cardiovascular risk and that the clinical importance of the observed increase in relative risk depends on the individual patient's absolute cardiovascular risk. For patients at high or moderately high cardio-

vascular risk (>10% risk of myocardial infarction or death from coronary disease over a 10-year period),<sup>1</sup> the risk associated with protease-inhibitor use may be an important consideration for clinical management. However, the relative risk of 1.16 per year (with a corresponding doubling of the risk over a 5-year period of exposure) may overestimate the protease-inhibitor-specific risk by excluding the effects of dyslipidemia, hypertension, and diabetes mellitus. In the model that included these risk factors, the relative risk per year of protease-inhibitor use alone was 1.10 (an approximately 60% increase over 5 years).

When comparing the relative contributions of lifetime and acquired risk factors with long-term cardiovascular risk, readers must consider the limitations of observational studies, including the fact that patients entered the DAD study with different levels of cardiovascular risk and other potential confounders.<sup>2</sup> Such comparisons are complicated and should be based on longer-term follow-up.

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1. Grundy SM, Cleeman JI, Merz CN, et al. Implications of recent clinical trials for the National Cholesterol Education Program Adult Treatment Panel III guidelines. *Circulation* 2004;110:227-39. [Erratum, *Circulation* 2004;110:763.]
2. Hughes MD, Williams PL. Challenges in using observational studies to evaluate adverse effects of treatment. *N Engl J Med* 2007;356:1705-7.

## A Medical Mystery: High Blood Pressure — The Answer

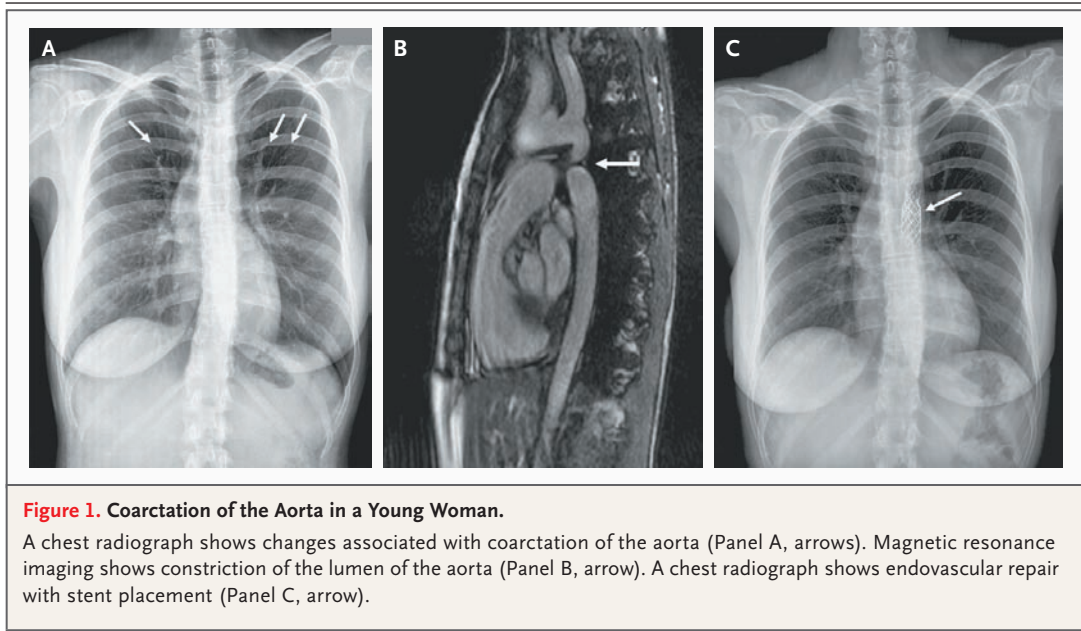
The medical mystery in the June 21 issue<sup>1</sup> involved a 28-year-old woman with a 1-year history of high blood pressure that was diagnosed during her first pregnancy. In addition to an elevated blood pressure, at 200/100 mm Hg, in the left arm, physical examination revealed a grade 3/6 midsystolic murmur over the anterior part of the chest and back. Radiography of the chest showed classic changes associated with coarctation of the aorta, including notching of the ribs (Fig. 1A, arrows) due to erosion by dilated collateral vessels and ectasia of the ascending aorta. Magnetic resonance imaging showed constriction of the lumen of the aorta

distal to the origin of the left subclavian artery (Fig. 1B, arrow). After endovascular repair with stent placement (Fig. 1C, arrow), the patient's blood pressure normalized. After 1 year of follow-up, she continued to do well, with a blood pressure of 136/87 mm Hg while she was taking 10 mg of amlodipine daily.

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**Figure 1. Coarctation of the Aorta in a Young Woman.**

A chest radiograph shows changes associated with coarctation of the aorta (Panel A, arrows). Magnetic resonance imaging shows constriction of the lumen of the aorta (Panel B, arrow). A chest radiograph shows endovascular repair with stent placement (Panel C, arrow).

*Editor's note:* We received 2962 responses to this medical mystery — 65% from physicians in practice, 21% from physicians in training, 8% from medical students, and 6% from other readers. Eighty-three percent of the responses correctly

identified the diagnosis of coarctation of the aorta. Responses were received from 92 countries.

1. Quiros-Lopez R, Garcia-Alegria J. A medical mystery — high blood pressure. *N Engl J Med* 2007;356:2630.

## Eisenmenger's Syndrome and Pulmonary-Artery Dissection

**TO THE EDITOR:** With regard to the surgical management of pulmonary-artery dissection in a patient with Eisenmenger's syndrome, described by Westaby et al. (May 17 issue),<sup>1</sup> Eisenmenger's syndrome is defined as the reversal of a long-standing left-to-right shunt, resulting in a right-to-left shunt. This change is a consequence of progressively increasing pressure in the right side of the heart. The authors report concomitant closure of the patent ductus arteriosus. Such closure in this setting remains contentious if not dangerous without evidence of pulmonary arterial reactivity and an accurate estimation of pulmonary vascular resistance. If the patent ductus arteriosus is closed, there is a risk of suprasystemic pulmonary-artery pressure, low cardiac output, and right ventricular failure.<sup>2</sup> Generally, if advanced pulmonary-artery hypertension is present, corrective surgery of shunts should be considered only for patients

with evidence of pulmonary arterial reactivity, the presence of left-to-right shunting of at least 1.5 to 1.0, or both.<sup>3</sup> This patient's history raises the question of whether he had advanced pulmonary-artery hypertension without reversal of shunt flow, rather than Eisenmenger's syndrome.

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1. Westaby S, Evans BJ, Ormerod O. Pulmonary-artery dissection in patients with Eisenmenger's syndrome. *N Engl J Med* 2007;356:2110-2.
2. Schneider DJ, Moore JW. Patent ductus arteriosus. *Circulation* 2006;114:1873-82.
3. Therrien J, Warnes C, Daliento L, et al. Canadian Cardiovascular Society Consensus Conference 2001 update: recommendations for the management of adults with congenital heart disease part III. *Can J Cardiol* 2001;17:1135-58.

**THE AUTHOR REPLIES:** With an unrepaired double-outlet right ventricle at 26 years of age, our