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Commentary: Endocarditis in hypertrophic cardiomyopathy: A reason to strengthen the guidelines?

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CENTRAL MESSAGE

Because patients with hypertrophic cardiomyopathy are at increased risk of infective endocarditis, it may be appropriate to reconsider the balance between the benefits and risks of antibiotic prophylaxis.

Infective endocarditis has long been recognized as a potential complication of hypertrophic cardiomyopathy and may be associated with substantial morbidity and mortality.[1] In this issue, Schultz and McMullan[2] from Seattle Children's Hospital report a rare case of a 15-year-old female who underwent surgery to treat endocarditis of the left ventricular outflow tract in the setting of hypertrophic obstructive cardiomyopathy. By chance, the surgery was limited to excision of the vegetation and resection of the hypertrophic septum, without any procedure at the level of the aortic and mitral valves that were not affected by the infective process.

Information on patients with hypertrophic cardiomyopathy who develop infective endocarditis is limited to isolated case reports and small case series.[3,4] Nevertheless, the incidence of endocarditis among these particular patients is reportedly 18 to 28 times higher than that in the general population. Left ventricular outflow tract obstruction and enlarged left atrium have been identified as factors that increase the risk of infection in hypertrophic cardiomyopathy.[3]

Until 2007, antibiotic prophylaxis to prevent infective endocarditis was recommended before invasive procedures for all patients suffering from hypertrophic cardiomyopathy, and especially for those with obstruction of the left ventricular outflow. However, in 2007, the American Heart Association and later the European Society of Cardiology revised their recommendations and eliminated antibiotic prophylaxis for patients with hypertrophic cardiomyopathy.[5,6] The reason for this was an apparently significant morbidity associated with prophylactic antibiotherapy and a lack of evidence supporting its efficacy in the setting of preventing endocarditis.

In retrospect, it is not completely clear why the American Heart Association and later the European Society of Cardiology recommendations maintained antibiotic prophylaxis for several other cardiac conditions in which endocarditis may have a similar mortality rate to hypertrophic cardiomyopathy. This is why this decision received criticism,[7] because the scientific evidence was found to be scarce, and when it occurs, endocarditis is a serious complication, as the authors discuss.

Coming back to the present case, the authors to be congratulated for the successful management of this young patient. From the reader's standpoint, to estimate the severity of the hypertrophic component, it would have been interesting to know more details about the type of hypertrophic cardiomyopathy (eg, subaortic, midventricular, diffuse) and the thickness of the septum. The need for a second pump run is not surprising; in some instances, intraoperative echocardiographic velocity and pressure gradients are difficult to assess and interpret in the context of hyperdynamic circulatory conditions immediately after weaning from cardiopulmonary

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bypass (eg, tachycardia, hemodilution). If there is any doubt regarding the potential overestimation of the pressure gradient, intraoperative pressure gradient assessment can be easily performed through simultaneous direct needle puncture in the left ventricle and in the ascending aorta. This will provide the most exact measurements. Another important information would have been the type of anticoagulation following such a procedure; we usually consider coumadin for 3 months.

In conclusion, this important case reminds us that infective endocarditis still must be considered in patients suffering from hypertrophic cardiomyopathy following simple dental procedures.[8] The particular anatomy of the mitral leaflets seen in some patients, the presence of a mild to moderate aortic regurgitation, and the centrifugal effect of the turbulent flow in the left ventricular outflow tract may lead to premature erosion of the endocardial layer, making these patients more susceptible to endocarditis. For this reason, it may be appropriate to reconsider the balance between the benefits and risks of antibiotic prophylaxis in such patients.

Since the guidelines have been weakened, there is a feeling of a significant increase in the incidences of both prosthetic and native valve endocarditis in a substantial number of institutions. Of course, this will require further analysis with strong statistical methodology.

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