

Asymptomatic Bicuspid Aortic Valve Patient

1. How do you follow an asymptomatic patient with bicuspid aortic valve?

Question submitted by: Dr. Enrique Guerra, Leamington, Ontario

As you know, a bicuspid aortic valve is the most common congenital cardiac abnormality in the adult population. About 10% of these will also have coarctation of the aorta. In young adults, at the time of diagnosis, about two thirds will have a functionally normal valve, in that there is neither significant stenosis nor significant regurgitation. Within 10 years of diagnosis, about 25% of this population will have had a cardiac event, most frequently requiring interventions to the aortic valve and/or the ascending aorta. Severe aortic regurgitation is more likely to develop than severe aortic stenosis. Aortic dissections

and aneurysms may also occur. Those most likely to have progression of the disease include older patients and those with moderate to severe aortic stenosis or regurgitation.

In an asymptomatic patient with a bicuspid aortic valve, in addition to regular physical examinations, a baseline echocardiogram is necessary. If the valve is functionally normal, I would recommend yearly echocardiograms to check for asymptomatic progression of stenosis or regurgitation, or aortic root dilation. Over the years, reports of progression of disease are very variable, from 30 to 60%

of those with a bicuspid aortic valve will develop further abnormalities. If there are changes in valve function, more frequent clinical assessments and echocardiograms (every four to six months) will be necessary in order to determine the need for surgical intervention, should progression continue. On a positive note, the average survival rate in an asymptomatic young adult with a bicuspid aortic valve is not different than that of the general population.

Answered by:

Dr. Wayne Warnica

Within 10 years, about 25% of this population will have had a cardiac event.

Implications in Finding Wellens' Syndrome

2. What is Wellens' Syndrome and what are the implications of such a finding?

Question submitted by: anonymous

In 1982, Wellens described two electrocardiographic (ECG) patterns that were predictive of critical narrowing of the proximal left anterior descending artery (LAD), subsequently termed "Wellens' Syndrome."¹ The ECG findings included either marked biphasic T waves, or deeply inverted T waves in the precordial leads V2 and V3. Since "a picture is worth a thousand words," an example of an electrocardiogram is included, showing the characteristic inverted T waves across the precordial leads. However, these ECG changes have a differential diagnosis, which includes the benign juvenile pattern, hypertrophic cardiomyopathy and contraction band necrosis seen in

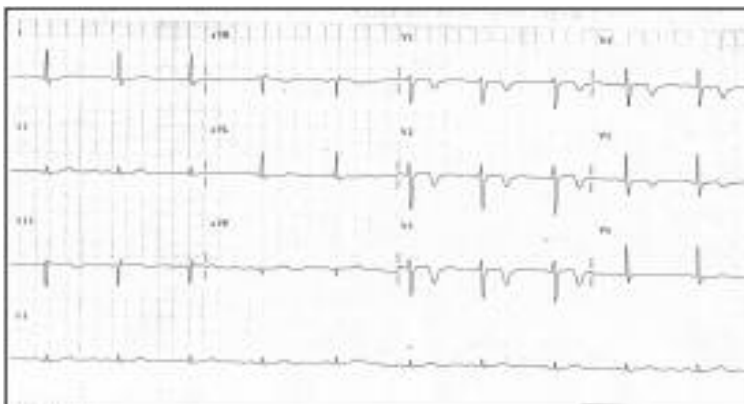
subarachnoid hemorrhage. To use the term Wellens' Syndrome there are specific clinical and electrocardiographic criteria that need to be met, which include: a chest pain history; minimal if any cardiac enzyme elevation; no acute ST elevation; and no loss of precordial R waves.² It is a serious finding. So, if a patient comes into the office fitting this bill, they need to go straight to the emergency room, do not pass go, do not collect \$200 dollars!

References

1. Am Heart J 1982;103:730-736.
2. Conover M. Wellens' Syndrome: Identification of Critical Proximal Left Anterior Descending Stenosis. Crit Care Nurse. 1990 Feb;10(2):30-6.

Answered by:

Dr. Theodore Fenske



Is There a Correlation Between Triglycerides and Increased Cardiovascular Risk?

3. Elevated triglycerides are associated with an increased cardiovascular risk. Have there been studies that show whether lowering triglycerides will reduce cardiovascular mortality?

Question submitted by: Dr. Diane Giroux, Montréal, Québec

If we base our practice on evidence-based medicine, then the quick answer to your question is that no evidence exists to show us that treating isolated high triglyceride levels, in the absence of other risk factors, prevents coronary events. The association of elevated triglycerides with coronary events weakens when the studies are controlled for factors such as diabetes, HDL and LDL cholesterol levels, body mass index and other known risk factors.

The most impressive risk reductions demonstrated come from patients with the triad of low HDL, high LDL and high triglycerides. All studies showing improved outcomes have simultaneously increased HDL while lowering triglycerides. Generally, it appears that professional societies recommend that elevated triglycerides should prompt a rigorous identification of risk factors for cardiovascular morbidity and mortality; (high dietary fat, excess alcohol, drugs such as steroids, β blockers and

high estrogen oral contraceptives, and medical conditions such as hypothyroidism, renal failure, liver disease, and Lupus). As well, these societies recommend that LDL lowering remains the primary target for therapy, based on the risk profile.

Answered by:
Dr. Wayne Warnica

All studies showing improved outcomes have simultaneously increased HDL while lowering triglycerides.

Total Cholesterol/HDL Elevated Ratio

4. What measures can be taken if a patient's total cholesterol/HDL ratio remains elevated, despite having an LDL-cholesterol level at target?

Question submitted by: Dr. Douglas Dover, St John's Newfoundland

The total cholesterol/HDL ratio is a sensitive and specific indicator of cardiovascular risk, and identifies patients with mixed dyslipidemia, which is often present in patients with type 2 diabetes mellitus and the metabolic syndrome. The Canadian Working Group for Dyslipidemia highlighted this lipid ratio as an important secondary target for lipid management, and recommended a value of less than four as a goal for high-risk individuals.¹ Pharmacologic approaches to address atherogenic dyslipidemia would include either intensification of statin therapy (3-hydroxy-3-methylglutaryl coenzyme A reductase inhibitors) to further reduce LDL-C levels, or use of combination therapy, such as the addition of either niacin or a fibrate derivative, to increase HDL-C levels.

Large-scale, randomized, prospective trials involving patients with established vascular disease have unequivocally shown that aggressive LDL-C lowering with statin therapy reduces the clinical consequences of atherosclerosis, including cardiovascular deaths, nonfatal myocardial infarction and stroke, hospitalization for acute coronary

syndrome and heart failure, as well as the need for coronary revascularization. And although statins have only a modest effect on raising HDL-C levels, there is some evidence to suggest that the statin effect on HDL-C reduces the progression of atherosclerosis and the risk of cardiovascular disease independently of reductions in LDL.²

In reference to combination therapy, Niacin is the most potent HDL-enhancing drug currently available, and can be safely used with statin therapy. While fibric acid derivatives, such as fenofibrate, bezafibrate and gemfibrozil are more effective than statins for increasing HDL-C and can reduce the incidence of nonfatal myocardial infarctions, they have not been shown to reduce all-cause mortality. It remains to be seen whether or not treatment with fibrates and niacin will provide additional cardiovascular risk reduction when combined with statin therapy.

There are a variety of non-pharmacological means to help bolster HDL-cholesterol levels, including daily exercise, smoking cessation and dietary adjustments, such as

increasing soluble fibre, and opting for foods higher in monounsaturated and polyunsaturated fats, instead of trans fatty acids or saturated fat.³ While some might argue that these lifestyle approaches are too hard-won for their minimal HDL-cholesterol raising effects, it is important to bear in mind that even small changes in HDL-cholesterol levels can have dramatic benefits for heart health. For every one percent rise in HDL-cholesterol, cardiovascular event rates drop by a corresponding one percent. And we must not forget that in addition to cholesterol management, lifestyle maneuvers are associated with improved health in general.

References

1. Genest J, Frohlich J, Fodor G, et al., Working Group on Hypercholesterolemia and Other Dyslipidemias. Recommendations for the Management of Dyslipidemia and the Prevention of Cardiovascular Disease: Summary of the 2003 update. CMAJ. 2003 Oct 28;169(9):921-4.
2. McTaggart F, Jones P. Effects of Statins on High-density Lipoproteins: a Potential Contribution to Cardiovascular Benefit. Cardiovasc Drugs Ther. 2008 Aug;22(4):321-38.
3. Sang ZC, Wang F, Zhou Q, et al., Combined Use of Extended Release Niacin and Atorvastatin: Safety and Effects on Lipid Modification. Chin Med J (Engl). 2009 Jul 20;122(14):1615-20.

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