Hypertensive Screening for Patients with Renal Dysfunction

1. Should newly diagnosed hypertensive patients be screened for early signs of renal dysfunction with an albumin to creatinine ratio?

Question submitted by: Dr. Roksana Sultana, Winnipeg, Manitoba

It's normal to lose some protein in the urine (that's what gives urine the bubbles), but no more than 150 mg/day, of which no more than 30 mg should be albumin. Microalbuminuria (MAU) is defined as a persistent elevation of albumin in the urine, in the range of 30 to 300 mg/day, which is less than can be detected by routine urine dipstick testing. MAU is measured in spot morning urine obtained from the patient in the office and sent for measurement of both albumin and creatinine. Although the cut points can vary, an albumin-to-creatinine ratio (ACR) value above 2.8 mg/mmol in women or 2.0 mg/mmol in men suggests that albumin excretion is above 30 mg/day, and therefore, MAU is present. The ACR is a more convenient test for patients and may be less prone to errors due to improper collection methods and variations in 24-h protein excretion, compared with a random urine specimen. MAU is an established risk factor for renal disease progression in type 1 diabetes and its presence is the earliest clinical sign of diabetic nephropathy. Among non-diabetic patients with essential hypertension, MAU is associated with higher blood pressures, increased serum total cholesterol, reduced serum high-density lipoprotein cholesterol, endothelial dysfunction, and is an independent risk factor for cardiovascular events. The ACR is a cost-effective way to identify hypertensive patients at higher risk for whom aggressive preventive and therapeutic measures are advisable.

Resources
1. Gerstein HC, Mann JF, Yi Q, et al, HOPE Study Investigators. Albuminuria and Risk of Cardiovascular Events, Death and Heart Failure in Diabetic and Non-Diabetic Individuals. JAMA 2001: 286(4):421-6.
2. Solbu MD, Kronborg J, Jenssen TG, et al, Albuminuria, Metabolic Syndrome and the Risk of Mortality and Cardiovascular Events. Atherosclerosis. 2009 Jun: 204(2):503-8.
3. Schrader J, Lüders S, Kulschewski A, et al, MARPLE Study Group. Microalbuminuria and Tubular Proteinuria as Risk Predictors of Cardiovascular Morbidity and Mortality in Essential Hypertension: Final Results of a Prospective Long-Term Study (MARPLE Study). J Hypertens. 2006 Mar: 24(3):541-8

Answered by:
Dr. Theodore Fenske

> MAU is measured in spot morning urine obtained from the patient in the office and sent for measurement of both albumin and creatinine

Management of Mitral Stenosis

2. How do you recommend managing mitral stenosis in a patient with rheumatic fever and subsequent mitral valve repair?

Question submitted by: Dr. T. R. Carscadden, Lively, Ontario

I think that there are two parts to this question. The first part deals with rheumatic fever, and potential for recurrence. If it has been less than 10 years since the patient's last episode of acute rheumatic fever, then secondary prophylaxis is recommended. All people with acute rheumatic fever or rheumatic heart disease should continue secondary prophylaxis for a minimum of 10 years after the last episode. Those with moderate or severe rheumatic heart disease should continue secondary prophylaxis until they reach 35 to 40 years of age.

Fortunately, we do not see rheumatic heart disease very frequently. Those that have developed mitral stenosis and require a subsequent mitral valve repair are well beyond the need for secondary rheumatic fever prophylaxis. Those who have had a repair are at risk for mechanical failure of the valve repair (fortunately this is not common), atrial fibrillation with its attendant embolic risk and infectious endocarditis. Such patients should be seen on a regular basis, searching for symptomatic or physical evidence of deterioration (new and changed murmurs, or evidence of heart failure) and have an electrocardiogram and an echocardiogram to assess the repair.

As you know, the current guidelines for endocarditis prophylaxis recommends that only patients at high risk for endocarditis be given such prophylaxis. In patients with rheumatic heart disease who have had a mitral valve repair, I would recommend that standard endocarditis prophylaxis be prescribed.

Answered by:
Dr. Wayne Warnica