Sleep Apnea and HT Tied in Kidney Disease

BY BRUCE JANCIN
Denver Bureau

SAN ANTONIO — Hypertension is associated with a significantly increased prevalence of sleep apnea among patients with chronic kidney disease, Dr. Stephen F. Derose reported at a meeting of the American Heart Association Council for High Blood Pressure Research.

The clinical implication of this finding is that comorbid hypertension in patients with chronic kidney disease (CKD) of any stage—including stage 1, marked by a normal glomerular filtration rate (GFR) plus proteinuria—might reasonably lower the threshold for screening for sleep apnea, added Dr. Derose of Kaiser Permanente Medical Center, Los Angeles.

There has been speculation that exposure to repeated hypoxic episodes as a result of comorbid sleep apnea accelerates damage to the kidney and increases mortality risk in CKD patients.

But since it would be a daunting task to screen everyone with CKD for sleep apnea, Dr. Derose and his colleagues set about to learn whether the presence of hypertension might be a useful factor in deciding which patients with CKD should be aggressively screened for the disorder.

In this large, cross-sectional observational study, he reported on nearly 721,000 adult Southern California enrollees in the Kaiser Permanente health plan with at least two GFR measurements during 2000-2004. Nearly 396,000 had a GFR greater than 90 mL/min per 1.73 m^2 and no proteinuria. The prevalence of diagnosed hypertension in this group was 28%, while 2.1% had received the diagnosis of sleep apnea. Of those with sleep apnea, 51% also had hypertension.

Exposure to repeated hypoxic episodes as a result of comorbid sleep apnea may accelerate damage to the kidney.

DR. DEROSE

Patients with stage 1 CKD presented a very different picture. The prevalence of hypertension in this group of just under 5,000 patients was 74%. The prevalence of sleep apnea was 5.3%. And 87% of those with sleep apnea were hypertensive.

In patients with stage 2-4 CKD, the prevalence of comorbid hypertension rose from 55% with stage 2 disease to 94% in stage 4. The prevalence of apnea remained steady at about 3.3%. In patients with sleep apnea, the prevalence of hypertension rose from 66% in stage 2 CKD to 86% in stage 3 and 100% in stage 4. ■

Pediatric Hypertension Is Linked To Sleep-Disordered Breathing

BY BRUCE JANCIN
Denver Bureau

SAN ANTONIO — Hypertension in children and adolescents may constitute a novel risk factor for sleep-disordered breathing, Dr. Alisa A. Acosta said at a meeting of the American Heart Association Council for High Blood Pressure Research.

"At this point, there is no indication to refer patients with only hypertension for a sleep study. However, our study does reinforce recommendations from the National Heart, Lung, and Blood Institute's working group for blood pressure in children and adolescents to screen for sleep-disordered breathing risk factors in pediatric patients with systemic hypertension, especially if they're obese." according to Dr. Acosta of the University of Texas, Houston.

At the university's pediatric hypertension clinic, physicians have begun routinely screening hypertensive patients for sleep-disordered breathing (SDB) risk factors and symptoms. If positive for even one, the patient is referred for a sleep study, as were 26 of the last 350 (7%) screened patients.

Of those 26 patients (mean age 12.6 years), 20 actually underwent overnight polysomnography, of whom 12 (60%) proved to have some form of SDB. Eight patients had obstructive sleep apnea, defined as more than one obstructive apnea episode per hour. Three patients had obstructive hypoventilation, diagnosed by a maximum PCO_2 greater than 53 torr during sleep and/or greater than 50 torr during more than 10% of sleep. One patient had hypopnea, marked by a greater than 50% reduction in airflow with a 4% decrease in oxygen saturation and/or a 25% drop in heart rate.

Sixty percent of the hypertensive patients who underwent polysomnography had some form of SDB.

DR. ACOSTA

In contrast to the observed 60% prevalence of SDB in this study, the prevalence in the general pediatric population has been estimated at 2%-3%. ■

Weight Loss in Prehypertension Cuts Risks, Helps Avoid Medication

BOSTON — Prehypertensive patients who participate in a structured weight-management program can significantly cut their risk factors and may avoid the need for drug therapy, according to a study presented at the annual meeting of NAASO, the Obesity Society.

A group of 351 patients who enrolled in various weight-loss programs had a mean baseline BP of 127/83 mm Hg. Over an average follow-up period of just under 3 years, these readings fell to a mean of 119/74 mm Hg, reported Linda Grant of Health Management Resources (HMR), Boston.

Mean weight at baseline was 231 pounds. During the follow-up period, this fell to 194 pounds, representing an average of 16% of initial body weight lost.

None of the patients was taking antihypertensive medications at baseline, and about 94 remained medication free throughout the study.

Patients in this cohort also had significant decreases in all other measured risk factors. Total cholesterol levels fell by an average of 14%, triglycerides decreased by 30%, and fasting blood glucose was lowered by 5%, Ms. Grant wrote in a poster session. "Lifestyle changes, including weight management, should be the first step in preventing or delaying the progression of prehypertension to hypertension and in reducing other comorbid risk factors," she wrote.

The weight-management options offered by HMR include medically supervised low- and very-low-calorie diets, moderately restricted diets, and telephone-based programs. All of the options focus on lifestyle changes such as increased physical activity to an expenditure of 2,000 kcal/week or more, the use of meal replacements, and increased fruit and vegetable intake to 35 servings/week or more.

In another study undertaken by HMR, Steve May, Ph.D., reported that program participants who lost 20% or more of their body weight had greater decreases in risk factors than did those who lost smaller amounts of weight.

Among 2,564 patients who had participated in the HMR weight-management programs at 65 clinics natiowide, those who lost the most weight—and kept it off for an average time of 123 weeks—also showed significant decreases in all other measured risk factors.

Moreover, a significant percentage of patients were able to eliminate medications for cholesterol, BP, and diabetes, Dr. May wrote.

—Nancy Walsh

Aldosterone Tied to Metabolic Syndrome in Hypertensive Blacks

SAN ANTONIO — Increased levels of adrenal steroids appear to contribute prominently to metabolic syndrome in African Americans, Dr. Theodore A. Kotchen said at a meeting of the American Heart Association Council for High Blood Pressure Research.

"We speculate that the finding of a relatively high plasma aldosterone and low plasma renin activity in hypertensive African Americans may represent a forme fruste or mild variant of the spectrum of disorders that we refer to as primary aldosteronism," said Dr. Kotchen, professor of medicine at the Medical College of Wisconsin, Milwaukee.

The prevalence of hypertension in African Americans is among the greatest anywhere in the world. Their hypertension-related cardiovascular event rates are also high. A 1970 study of more than 35,000 consecutive autopsies concluded that hypertensive African Americans have an increased prevalence of adrenocortical hyperplasia and adenomas.

To examine the relationship between adrenal steroids—specifically, aldosterone and cortisol—and metabolic syndrome risk factors in African Americans, Dr. Kotchen and his coinvestigators studied 182 hypertensive and 215 normotensive African Americans aged 18-55 years in an inpatient clinical research unit. Roughly half were women. All subjects had temporarily discontinued antihypertensive and lipid-lowering medications weeks beforehand.

The mean plasma aldosterone value of 8.4 ng/dL in hypertensive subjects was significantly higher than the 6.3 ng/dL in normotensives. Both late-night and early-morning salivary cortisol levels were significantly higher in hypertensive individuals as well.

In contrast, plasma renin activity was inversely related to blood pressure, indicating that the increase in aldosterone in hypertensive African Americans isn't renin mediated.

Overall, 17% of study participants met criteria for metabolic syndrome. Plasma aldosterone levels were significantly higher in subjects with metabolic syndrome than in those without it.

Moreover, both aldosterone and blood pressure were significantly correlated with each of the individual elements of metabolic syndrome: waist circumference, cholesterol, triglycerides, body mass index, low HDL cholesterol, plasma insulin, and insulin resistance.

On the basis of these observations, Dr. Kotchen offered the following speculation regarding the potential mechanisms involved in obesity-related hypertension in African Americans: Environmental and perhaps genetic factors contribute to the development of central obesity, which triggers increased activity of β-hydroxysteroid dehydrogenase in visceral adipose tissue. This enzyme converts metabolically inactive cortisone into active cortisol, which promotes adipogenesis and adipose tissue hypertrophy in target tissues, creating a vicious cycle that leads to further increases in cortisol.

—Bruce Jancin