

Heart of the Matter: Hypertension & Homelessness

Cardiovascular (CV) disease is the leading cause of premature death and permanent disability in the United States.¹ Most apparent in its acute manifestations (heart failure, heart attack, stroke, end-stage renal disease), CV disease can be nearly invisible, though insidious, in its chronic form—

hypertension (high blood pressure), which affects nearly one in four adult Americans over age 20.¹ Like most chronic diseases, hypertension is even more common among homeless people. HCH clients are reported to be at least twice as likely to have this disorder as domiciled patients.²

Uncontrolled hypertension (blood pressure >140/90 mm Hg) can lead to acute cardiovascular disease. With lifestyle changes and adherence to medical treatment, where warranted, these risks can be significantly reduced or eliminated. Prevention and management of cardiovascular disease in home-

less persons is particularly challenging because of their dietary limitations, transience, and frequently co-occurring mental and be-

Only 27% of adult Americans with hypertension have their blood pressure under control (below 140/90 mm Hg).^{4,5}
National Heart, Lung, and Blood Institute, 1997

havioral disorders that exacerbate underlying hypertension and interfere with adherence to treatment and lifestyle modifications. The result is higher occurrence of life-threatening complications.^{2,3}

High blood pressure tends to run in families, and is explained by the interaction of multiple genetic and environmental variables. Among known risk factors are family history of CV disease, co-occurring diabetes, obesity, poor nutrition (especially diets high in salt and low in potassium), insufficient exercise, cigarette smoking and other substance abuse.

Although persons of any age or ethnicity can have hypertension, its prevalence increases sharply with age and is significantly higher among African Americans, in whom onset is earlier and average blood pressures are higher, resulting in higher rates of morbidity and mortality.^{1,4,5}

In the following articles, experienced homeless health care providers discuss treatment of hypertension and how to reduce cardiovascular risks, particularly in substance abusers, and recommend strategies for actively engaging them in self-care, with or without the use of antihypertensive medications. Readers are invited to pursue these topics further by consulting the sources and resources cited on page 4. Among them is the new Health Disparities Collaborative on Cardiovascular Disease, initiated this month by the Bureau of Primary Health Care, in which HCH projects are encouraged to participate. ■

Treatment Issues: CV Disorders & Substance Abuse

Some clinicians are wary about prescribing antihypertensive medications for patients who are actively using addictive substances, for fear of drug incompatibilities and compromised adherence to treatment. Experienced practitioners point to safeguards that can be taken to enable concurrent treatment of hypertension and substance abuse, which they advise.

Internist **Murray Smith, MD**, has served homeless people in Tennessee for many years, as a consultant to the Downtown Clinic in Nashville, and currently as a full-time addictionologist at New Life Lodge in rural Dixon, Tennessee, where some HCH clients are referred for intensive residential treatment of substance abuse disorders. Dr. Smith is one of only 3,000 physicians in the country who are certified in addiction medicine—a paltry number, in light of the fact that one in five adults in the United States has a substance abuse

disorder. Chemical dependency is a medical problem that should not be ignored in treating cardiovascular disease, he reminds homeless **CARDIOVASCULAR EFFECTS OF SUBSTANCE ABUSE** Hypertension, congestive heart failure, stroke, subdural hematomas and subarachnoid bleeds are commonly associated with substance abuse. "The major cardiovascular problem caused by addictive drugs is damage to the heart, which may first present as hypertension," says Dr. Smith. "High blood pressure, bleeding, falls and injuries may also be the clinician's first clues to a patient's addiction."

Nicotine is the number one abused addictive drug. Smoking elevates blood pressure and pulse, causing heart attack and stroke. About 70% of studied homeless populations free-base nicotine, compared to 25% of the general US population.⁷

Alcohol Over three ounces of ethanol per day is an independent cause of high blood pressure, although any amount can exacerbate pre-existing hypertension. Alcohol abuse frequently leads to cardiomyopathy and heart failure, with or without hypertension, and can cause bleeding in the brain. Withdrawal induces reactive high blood pressure. Cardiovascular effects of alcohol can occur at all ages, in both genders. For any amount of alcohol consumed, females will have a 15% greater concentration in their bloodstream than males, with a correspondingly greater effect on blood pressure.⁸ "A fair number of alcoholics don't need antihypertensive medication if they can just stop drinking," observes Smith.

Cocaine and amphetamines cause severe damage to the circulatory system: cardiac arrhythmias, acute hypertension, stroke, and heart attacks. Ephedra and Mahuang ("white crosses") are dietary supplements used for weight loss that also have these effects. Cocaine and alcohol inhibit the body's ability to fight infections, which explains why endocarditis (inflammation of the lining of the heart) is a frequently seen in IV drug users who use unclean needles. Low immune function is itself an indicator of chemical dependency.

Heroin and other opiates increase the likelihood of falls, resulting in brain injury (subdural hematomas). Withdrawal causes elevated blood pressure. In most rural areas, there is comparatively greater use of alcohol and amphetamines than cocaine or heroin, Smith reports.

Inhalants (paint, glue, solvents, and gasoline) cause cardiac arrhythmias and sudden death.

"It's not badness, meanness, dumbness or craziness that causes addiction problems. Addiction is not a matter of choice; it's about losing choice." — Murray Smith, MD, Dixon, Tennessee

APPROACH TO TREATMENT "Persons who are susceptible to addiction are born with a genetically 'loaded gun' in their brain. They trigger the addiction when they start using chemicals," explains Smith. Genetic factors are believed to contribute 40–60% of the risk for alcoholism.⁸ Brain changes have been demonstrated in the sons of alcoholics before they ever take a drink. Investigations have

health care providers.

shown that such people have insufficient levels of dopamine and other neurochemicals in their brain, and use psychoactive substances to increase them. Unfortunately, they only make themselves sicker by doing so. "The inference that should be drawn from this information is that addicted patients should be treated with respect for having a progressive, potentially fatal illness," concludes Smith. "In trying to engage these patients in treatment, don't use the words 'right or wrong,' 'good or bad.' Ask instead whether what they are doing is working or not," he advises. "Teach your clients how to take care of their illness in a way that works."

"Every illness homeless people have and every body system is affected by the addictive drugs they use. Whatever illness we are treating, we need to treat their substance abuse concurrently," affirms **Aaron Strehlow, RN, PhD(c), CS, FNP-C, NPNP**, clinical director and administrator of the UCLA School of Nursing Health Center at the Union Rescue Mission in Los Angeles. HCH providers should assume that most of their patients are using psychoactive substances, present factual information about their physiological effects, and avoid a judgmental attitude, he advises. "Attempt to engage substance abusers through motivational interviewing until they are ready for addiction treatment, while controlling their hypertension." Strehlow acknowledges that this is difficult for clinicians who weren't taught to handle substance abuse in school. "It's easier to pass out pills for high blood pressure and ignore clients' substance abuse. But that doesn't work in homeless health care."

DRUG CONTRAINDICATIONS The main risk in prescribing antihypertensives for substance abusers is incurred with beta-blockers and calcium channel blockers, which can decrease the muscle power of the heart and bring on congestive heart failure (the most common cause of death in persons with alcoholism), warns Dr. Murray Smith. There is also some suggestion that beta-blockers may increase the risk of a heart attack from blood vessel spasm in persons using cocaine and amphetamines. To avoid these complications, he uses angiotension converting enzyme blockers (ACE inhibitors). Withdrawal hypertension can be safely alleviated with clonidine pills or patches, closely monitored.

ACE inhibitors are also preferred for treating hypertension with diabetes or heart failure, and can be used as an alternative to beta-blockers for patients with chest pain and a history of myocardial infarction,^{4,6} reports **Jackie Master, MSN, ARNP-CS**, clinic administrator at Miami Hope Health Center, Miami, Florida. During the past year, the clinic served 1,000 individuals with hypertension, at least 50% of whom had co-occurring substance abuse problems. Master sees more crack use than alcoholism. Most of her patients are African American; those with hypertension tend to have a family history of cardiovascular disease. Many of these clients respond nicely to calcium channel blockers, taken once daily, she says. Hy-

pertension in African Americans is generally more responsive to inhibitors; but if one of these drugs is preferred for other therapeutic reasons, its effectiveness can usually be enhanced with reduced salt intake, higher dosage, or addition of a diuretic.^{4,6}

“Patients experiencing chest pain or shortness of breath should be sent to the emergency room,” says Master. “Those with very high blood pressure but no other symptoms may be totally unaware that a stroke or heart attack is imminent,” she warns. “That’s why hypertension is called ‘the silent killer.’ To avert an emergency, you have about 24 hours to bring their blood pressure to a safer level.” Master is reluctant to use beta-blockers and clonidine pills for poor adherents because suddenly stopping the medication can result in serious rebound hypertension. For patients withdrawing from alcohol who are unable to get a detox bed, she administers increments of clonidine twice daily, and monitors them closely.

Beta-blockers are also contraindicated in people with COPD and asthma because they slow heart rate and cause shortness of breath,

diuretics and calcium channel blockers than to beta-blockers or ACE reports **Anita Louison, RPA-C**, of Swope Parkway Health Center in Kansas City, Missouri. “Clients sometimes avoid taking blood pressure pills while actively using addictive substances, for fear of drug incompatibilities. I tell them it’s even more important to keep taking prescribed antihypertensives when they are actively using.”

Given the variety of antihypertensive medications now available, drug therapy can be safely used, with the caveats just mentioned, to reduce cardiovascular risks induced by substance abuse, with or without underlying hypertension. According to the latest NIH treatment guidelines, antihypertensive medication plus lifestyle modifications should be considered as initial therapy for patients with multiple risk factors, including heart failure, renal insufficiency, clinical cardiovascular disease, and/or diabetes.⁴

For more information about drug interactions with antihypertensive therapy, therapeutic alternatives, and considerations for individualizing therapy, see: www.nhlbi.nih.gov/guidelines/hypertension/jncintro.htm. ■

Meeting the Challenges of Prevention & Self-Care

Even when antihypertensive drug therapy is indicated, many homeless people may resist treatment or have extreme difficulty adhering to it—particularly those who suffer from psychiatric illnesses, mental retardation and/or substance abuse. Lacking funds or health insurance and living in crisis, persons experiencing homelessness tend to seek care only in emergencies. Storage space, where available, is limited, requiring them to carry medications with them. As a result, pills are often lost or stolen, or crumble in pockets from the movement of walking.^{2,3}

Multidose regimens are confusing and impractical. Poor water intake and lack of access to bathroom facilities complicate the use of diuretics. Even when sufficiently motivated to reduce blood pressure through lifestyle changes, homeless individuals have difficulty maintaining weight reduction and low-sodium diets. Food selection in most shelters and

soup kitchens is limited, and vigorous exercise may be constrained by the lack of comfortable walking shoes and socks.^{2,3}

Despite these impediments, experienced homeless service providers and their clients have demonstrated that cardiovascular risks can be reduced and emergencies prevented with a comprehensive, client-centered approach to care and self-management.

Anita Louison, RPA-C, attests to the challenges of cardiovascular risk reduction in the homeless population, but remains undaunted. She and another physician’s assistant from Swope Parkway in Kansas City deliver antihypertensive drugs to patients in area shelters. They develop rapport with shelter supervisors, who agree to store the medications until clients

can pick them up, usually within a day or two.

“Once our clients start taking antihypertensive medications, they seem truly concerned about keeping their blood pressure under control,” says Louison. “Many understand the risks of hypertension because they have family members who died from stroke or heart attacks; 2% of these clients have had strokes themselves. Nevertheless, addiction problems sometimes get in the way.” Last year, 63 of their homeless clients had a diagnosis of hypertension with co-occurring substance abuse. Most smoke and abuse alcohol. Those engaged in heavy, physical work seem to have their cholesterol under control. Donated shelter food tends to be high in salt and fat, but residents walk several miles to eat lunch at a local church with a cooking school that prepares healthier meals.

TIPS FOR HCH PROVIDERS

- Check blood pressure whenever clients come in. Target is <140/90 mm Hg for uncomplicated hypertension, < 130/35 mm Hg for patients with co-occurring diabetes, 125/75 mm Hg for those with renal disease.⁹
- Assess the situation. Get at clients’ values and beliefs through how they are responding to your questions.
- Explain the risks associated with hypertension and substance abuse. Use motivational interviewing to promote readiness for concurrent treatment of substance abuse and high blood pressure.⁷
- Develop a joint plan of care with each individual. Assess barriers to adherence and ask if the treatment plan will work for them. If not, alter it accordingly.
- If possible, prescribe long-acting antihypertensive medications that can be taken once instead of several times per day. Keep lines of communication open and encourage regular follow-up, even if patients do not adhere to treatment.
- Be part of a team. Whatever your discipline, work with other services to provide comprehensive care.

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Jo Ann Lierman, PhD, ARNP, RNC, is health and wellness coordinator at Redemptorist Center, an emergency assistance facility with a nurse-based clinic in downtown Kansas City. She also teaches at the University of Kansas School of Nursing. Lierman sees obesity coupled with hypertension in her homeless clients, complicated by emphysema and liver problems secondary to smoking and alcoholism. Patients sometimes sell their antihypertensive drugs, so clinicians only give them a week's supply at a time. Swollen feet and fluid in the lungs indicate that they are not taking their meds.

Homeless people come to Redemptorist for food, health care and social services. All are contingent upon sobriety. Lierman rewards clients who stay sober all week with extra food, including fresh produce and canned goods. The center helps homeless clients find shelter or permanent housing, get a job, and navigate the social system. Their drug rehabilitation program features counseling in a

halfway house following detoxification and help with job placement.

"When patients see that you are willing to give them the tools to take better care of themselves, they begin to think they are of value. Communication reinforces the feeling that someone cares."

— Jackie Master, MSN, ARNP-CS, Miami, Florida

When clients come to the clinic, Lierman's first priority is to listen to their emotional problems and bolster low self-esteem, which is often at the root of homelessness. Allowing clients to vent their emotions gradually builds rapport, she says, and emotional support fosters receptiveness to educational information. The first positive outcome she looks for is when a client begins to ask questions (e.g., "What did you say about eating salt?").

Many homeless clients are illiterate or poorly educated. They typically haven't been to see an eye doctor of any kind, and may have blurred vision as a complication of diabetes and hypertension. So Lierman formats educational materials in large print, and uses language appropriate for a 3rd or 4th grade reading level, lots of graphics, and colored pa-

per. She also educates volunteers at soup kitchens about the dietary needs of persons with cardiovascular disease. For example, she suggests putting a salt substitute on the table, and encourages them to spotlight one dish each week that is low in salt or sugar, listing its salt and sugar content. This encourages clients to eat healthy things, such as sugar-free jello with fruit, baked instead of fried chicken cooked without the skin, spices instead of salt. (One client was extremely proud of himself when he used a salt substitute for an entire week.) At least once a month, Lierman provides a sample of a healthy food for clients to taste, such as a rice cake.

"Look to universities, junior colleges, seniors centers and hospitals for nutritional help," she suggests. All of these institutions have dieticians who often do community outreach and are willing to make presentations at soup kitchens, suggest menus, and provide recipes. "Think about small changes your patients can make," she advises. Little changes can lead to bigger ones. ■

SOURCES & RESOURCES

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12. HRSA/DHHS. Health Disparities Collaborative on Cardiovascular Disease. Nine HCH projects are currently participating in this collaborative. For more information, contact Laura Gillis, MSN, at 410/706-1074; lgillis@nhchc.org.

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