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Resident Characteristics & Assessments
High Blood Pressure

Understanding High Blood Pressure

One in four Americans has high blood pressure, and almost half of them don't even know it. Let's take a closer look at this common condition. To truly understand high blood pressure, or hypertension as it's known in the medical community, it helps to have a basic knowledge of the circular path through which blood flows. Normally, blood leaves the heart through the aorta, which then branches into smaller arterioles, and finally tapers into smaller capillaries thus supplying the body with oxygen. The blood finishes its circular journey by returning to the heart. On occasion, various factors can cause the arterioles to narrow. When this occurs, the heart has to work harder to pump blood through the smaller opening. This is high blood pressure. It's easy to ignore the threat of hypertension. San Francisco 49ers great, Joe Montana, certainly wasn't worried about this condition. He was too busy leading his team to four Super Bowl victories. But despite his active lifestyle, Joe did have high blood pressure. Because hypertension is often asymptomatic, Joe wasn't even aware of the problem until after his retirement. Due to cases like this, doctors have nicknamed high blood pressure, 'the silent killer'. Not getting treatment for hypertension is bad news, because up to 70 percent of strokes are a direct result of the condition. Plus, high blood pressure contributes to heart attacks and kidney failure. To sidestep these consequences, a doctor should test your blood pressure at every check-up. Blood pressure is measured in two ways. One measurement refers to systolic pressure, which records blood pressure when the heart is contracting. The other measures diastolic pressure or the force when the heart is relaxed. Blood pressure measurement is usually written as systolic over diastolic and provides the basis for determining whether a patient's blood pressure is in the healthy range, or if it's at dangerously high. Optimal blood pressure is below 120 over 80, while a measure above 140 over 90 is classified as hypertension. Blood pressure that lies in the middle is called pre-hypertension, and means that the patient is at risk of developing high blood pressure. In 95 percent of cases the cause of high blood pressure is unknown, but there are certain risk factors that increase your chances of developing hypertension. Among those with a higher hypertension risk are people with a family history of high blood pressure, people over the age of 40, those who are overweight or sedentary, women who take birth control pills and African-Americans. The only way to know for sure if you have hypertension is to visit your doctor regularly. Because hypertension is the precursor for many heart diseases, it is important to get checked at every visit. Becoming aware of the severity of high blood pressure, and actively being tested for it will help to ensure that the 'silent killer' isn't silent in your life.

Consequences of High Blood Pressure

Among people who have high blood pressure, thirty percent don't even know about it. And that's bad news, because untreated hypertension causes thousands of deaths each year. As many as 65 million Americans over the age of six have high blood pressure, also known as hypertension. So what are the consequences of this epidemic? A stroke, which affects the arteries leading to the brain, is one of hypertension's most serious consequences. Strokes are caused by a clot obstructing the flow of blood to the brain, or by a vessel rupturing with the same result. Al Capone is best known for his life of crime in prohibition America, where he was heralded as the boss of a criminal organization Chicago. What many people don't know about Capone however is that he suffered a stroke while in prison, which led to his demise at the age of 48. People with hypertension are eight times more likely to suffer from strokes like Capone's than people with normal blood pressure. In fact, high blood pressure is identified as the number one risk factor for strokes. People with hypertension are also twice as likely to suffer from heart attacks. A heart attack occurs when the flow of oxygen-carrying blood to the heart is blocked. Like strokes, heart attacks can result in death. High blood pressure is also the number one risk factor for developing congestive heart failure. This serious condition occurs when the heart is unable to pump enough blood to supply the body's needs. In addition, people with untreated hypertension often suffer kidney damage or even kidney failure. The kidneys act as filters to rid the

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body of waste. Over time, high blood pressure can narrow and thicken the blood vessels of the kidneys, making it difficult for them to do their job and resulting in waste build up in the blood. High blood pressure can also affect the arteries and smaller arterioles throughout the body. As we age, our arteries harden and become less elastic. While this occurs gradually in all people, those with hypertension experience a speeding up of the process, causing the heart and kidneys to work harder. Even the eyes are not immune to the effects of hypertension. Long-term high blood pressure can eventually cause blood vessels in the eyes to burst or bleed. As a result, vision can become blurred or otherwise impaired. In some cases, total blindness can occur. These consequences are frightening, but the good news is that they are avoidable. Clinical trials have found that lowering blood pressure to acceptable levels can reduce the risk of stroke by 35 percent, the likelihood of heart attack by 25 percent and the occurrence of heart failure by 50 percent. If you have hypertension, or think you may be a candidate for developing the condition, please talk to your doctor about treatment options.

Treatments for High Blood Pressure

If you're among the 25 percent of Americans with high blood pressure, your first line of defense will usually be hypertension medication. If you have high blood pressure, your heart has to work harder to pump blood through your body. This can lead to the biggest killer in America: heart disease. Luckily, prescription medication can help treat this common condition. Angiotensin converting enzyme inhibitors, or ACE-inhibitors, and angiotensin receptor blockers, or ARB drugs, both effect the hormonal system that regulates blood pressure. The renin-angiotensin system, works like this: the kidneys produce an enzyme, renin, which is converted to the hormone angiotensin. Angiotensin controls constriction of the arteries. While active angiotensin causes them to narrow, the inactive form does not. Both ACE-inhibitors and ARB drugs stop angiotensin from becoming active so that it cannot narrow the arteries, effectively lowering blood pressure. ACE-inhibitors, like Vasotec and Zestril, are quite valuable, but they have one downside: the common cough that often accompanies the medication. For this reason, some people may find ARB drugs, like Avapro and Cozaar, to be more convenient. Some people with hypertension are treated with a group of medications known as beta-blockers, like Tenormin, Inderal and Toprol. Beta-blockers work on the sympathetic nervous system, a part of the body that helps regulate involuntary functions, such as your heart beat. These medications slow the heart rate and reduce the force of its contractions. While beta-blockers are useful for hypertension suffers who also have angina or have experienced a recent heart attack, the side-effects, which can include depression and nightmares, don't make it ideal for everyone. Alpha-blockers, like Hytrin and Cardura, cause the heart's arteries to widen, thereby lowering blood pressure. Alpha-blockers may be particularly useful for patients with enlarged prostate glands. But, because they can actually increase the risk of heart-related problems, alpha-blockers are recommended for use only in conjunction with other drugs. Calcium channel blockers, or CCBs, inhibit the movement of calcium into the muscle cells of the heart and arteries. Because calcium is needed for the heart to contract, these drugs decrease the force of the heart's pumping, thereby lowering blood pressure. CCBs are available in sustained-release and short-acting form. Examples of commonly prescribed CCBs include Calan, Norvasc, and Cardizem. Perhaps the oldest known hypertension medications are diuretics, like Hydrodiuril and Lasix. Excess salt in the body leads to excess fluid, which, in turn, causes increased pressure on the heart, or high blood pressure. Diuretics work in the tiny tubules of the kidneys to remove fluid from the body. No matter what medication or combination of medications your doctor prescribes for you, it is vital to take these drugs exactly the way your physician's prescribes them.

Preventing High Blood Pressure

Is your blood pressure normal? That's great. But before you enjoy a celebratory drink, let's look at some ways to prevent hypertension from developing. Twenty-five percent of Americans have high blood pressure, also known as hypertension, and new cases develop every second. Because hypertension is the leading cause of stroke and congestive heart failure, it's important to take steps to prevent blood pressure from spiking. The best way to lower your chances of developing hypertension is to maintain a healthy weight. In fact, doing so can decrease your likelihood of high blood pressure six-fold. The simplest way to determine if you should lose weight is to calculate your body-mass index, or BMI. To check your BMI, you'll need to know your height in inches, and your weight in pounds. Multiply your weight in pounds by seven-hundred and three. Then, take your height in inches and square it. Divide the first figure by the second. The resulting number is your BMI. If your BMI falls between 18 and 24.9, you're in the normal range, while one between 25 and 29.9 equates to being overweight. A BMI of 30 or higher is obese. People with numbers in this range may want to consider losing some weight. One great way to maintain a healthy weight is to get regular exercise. Doing so can reduce your risk of developing high blood pressure by up to 50 percent, independent of its benefits on your weight. You don't have to be an Olympian to get the benefits of exercise. Even light activities, if done daily, can help reduce hypertension risk. Two important dietary changes can also help prevent hypertension. The first is reducing your alcohol intake. Because too much alcohol can increase your blood pressure, women should have no more than one drink a day, while men should stop at two. Remember when you're consuming alcohol that a drink is defined as 12 ounces of beer, 5 ounces of wine and 1.5 ounces of 80-proof liquor, like vodka. Excess salt in the body leads to excess fluid, which, in turn, causes increased pressure on the heart, or high blood pressure. To avoid this, it can help to reduce your salt intake. And while you're planning low-salt meals, remember these three important minerals: potassium, calcium and magnesium. Each can help keep blood pressure at healthy levels. Find potassium in fruits and vegetables, like potatoes and bananas. Get calcium from low-fat dairy products and edamame. And stock up on magnesium with whole grains, nuts and seeds. While it's important to be aware that hypertension can produce negative consequences, it's also important to relax. There is evidence that repeated stressors can make blood pressure rise over time. So try to take some time-out during stressful phases to do something that relaxes you. A session of yoga, a long walk, or even deep breaths count. Because hypertension can have serious consequences, taking measures to ensure that you reduce your risk of developing it is a smart idea. Also, be sure to visit your physician regularly to have your blood pressure tested.

ACKNOWLEDGEMENTS

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Dr. Brian P. Kessler has been the Medical Director of Spine and Sports Medicine since 2000. He received his Bachelor's Degree from Emory University and his MD from St. George's University School of Medicine. Dr. Kessler completed his medical internship in General Surgery at Easton Hospital, in Easton, Pennsylvania. His residency in General Surgery was accomplished at Lincoln Hospital Medical Center, a Level One Trauma Center in the Bronx. Dr. Kessler handled spine, orthopedic and head trauma while serving as a Surgical House Physician at seven New York City area hospitals and trauma centers, including Wyckoff Heights Hospital, King's County Medical Center, and the Elmhurst Hospital Center, a teaching affiliate of the Mount Sinai Hospital in New York City. Combining the skill of running a topnotch medical practice in New York City with depth of experience in orthopedics and trauma of the spine and head, Dr. Kessler works hard to be an excellent physician who understands the importance of maintaining good health.