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Getting the Right Hypertension Drug

By GAUTAM NAIK

Roughly half the 50 million Americans who suffer from hypertension don't succeed in keeping their blood pressure under control, often because they haven't been prescribed the drug that would work best for them. Now, three new studies are suggesting ways to help make sure patients get the right medications.

Five types of drugs are commonly used for treating hypertension, or high blood pressure, a major risk factor for heart attacks and stroke. Doctors often choose among the drugs by trial and error, prescribing several of them in turn to see which works best for a particular patient. Complicating matters: Most people need more than one drug to control high blood pressure, making it all the more difficult to ensure a patient is receiving the most effective treatment.

"Our current prescribing methods are very primitive. We haven't increased the success rate [in treating hypertension] in 35 years," says Michael Alderman, a blood-pressure expert at the Albert Einstein College of Medicine in New York City, and a co-author of one of the new studies.

Doctors have known for decades that patients with different physical characteristics respond differently to various hypertension drugs. But little research has focused on matching specific pills to specific patients. The new studies, which appear in the latest issue of the *American Journal of Hypertension*, represent efforts to provide scientific guidance for doctors treating high blood pressure.

One of the studies, for example, shows that some drugs work better in certain ethnic groups than in others. Two other studies point to the importance of testing patients' levels of renin, a hormone produced by the kidneys, as a guide in prescribing blood-pressure medicine. Researchers in each of the studies emphasized that larger-scale trials would be necessary before the findings could become part of official treatment guidelines.

Hypertension is an unhealthy increase of blood pressure on the arteries. The pressure is governed by the body's intricate plumbing mechanism: The heart is the pump, the arteries are the pipes, and the kidneys are sewers that eliminate unwanted fluids. Blood pressure can go up either because there's too much fluid (salt and water) in the system, or because the arteries have narrowed. Blood pressure can rise with a diet that is high in salt.

The most common therapies are diuretics, which are cheap, well-tested, and have been around for decades. These drugs boost the release of fluid through the kidneys. Another drug class, beta blockers, slow the heart and thus lower the amount of blood that's pumped. Ace inhibitors, alpha blockers and calcium channel blockers reduce pressure by dilating the blood vessels.

One of the studies, co-authored by Ajay Gupta of Imperial College London, looked at drug responses among 5,425

patients in various countries and across different ethnic groups. For example, in the U.K., south Asians are often given ace inhibitors as a first-line treatment, though the effectiveness of such prescriptions isn't based on any hard evidence. Dr. Gupta's study, for the first time, confirms that south Asians respond especially well to such drugs.

U.K. medical-treatment guidelines say that first-line drug therapies should be guided by a patient's age and race. (Guidelines in the U.S. don't include such suggestions.) Dr. Gupta and his colleagues showed that the same guidelines might also apply for second-line treatments. For example, if a black patient is given a calcium channel blocker or diuretic as the first drug, U.K. guidelines recommend adding an ace inhibitor.

But the study suggests that may not be the most effective route. Instead, if a calcium channel blocker is first prescribed, a diuretic should be the add-on drug. If a diuretic is first prescribed, a calcium channel blocker should be the second-line treatment.

The two other studies focused on the hormone renin. Medical experts say few doctors today measure a patient's renin level, despite a study in the 1970s that suggested it might be used as a biomarker for prescribing the drugs. Contradictory evidence that emerged later, and the cost and delay of testing for the hormone, helped keep renin-testing from catching on, medical experts say.

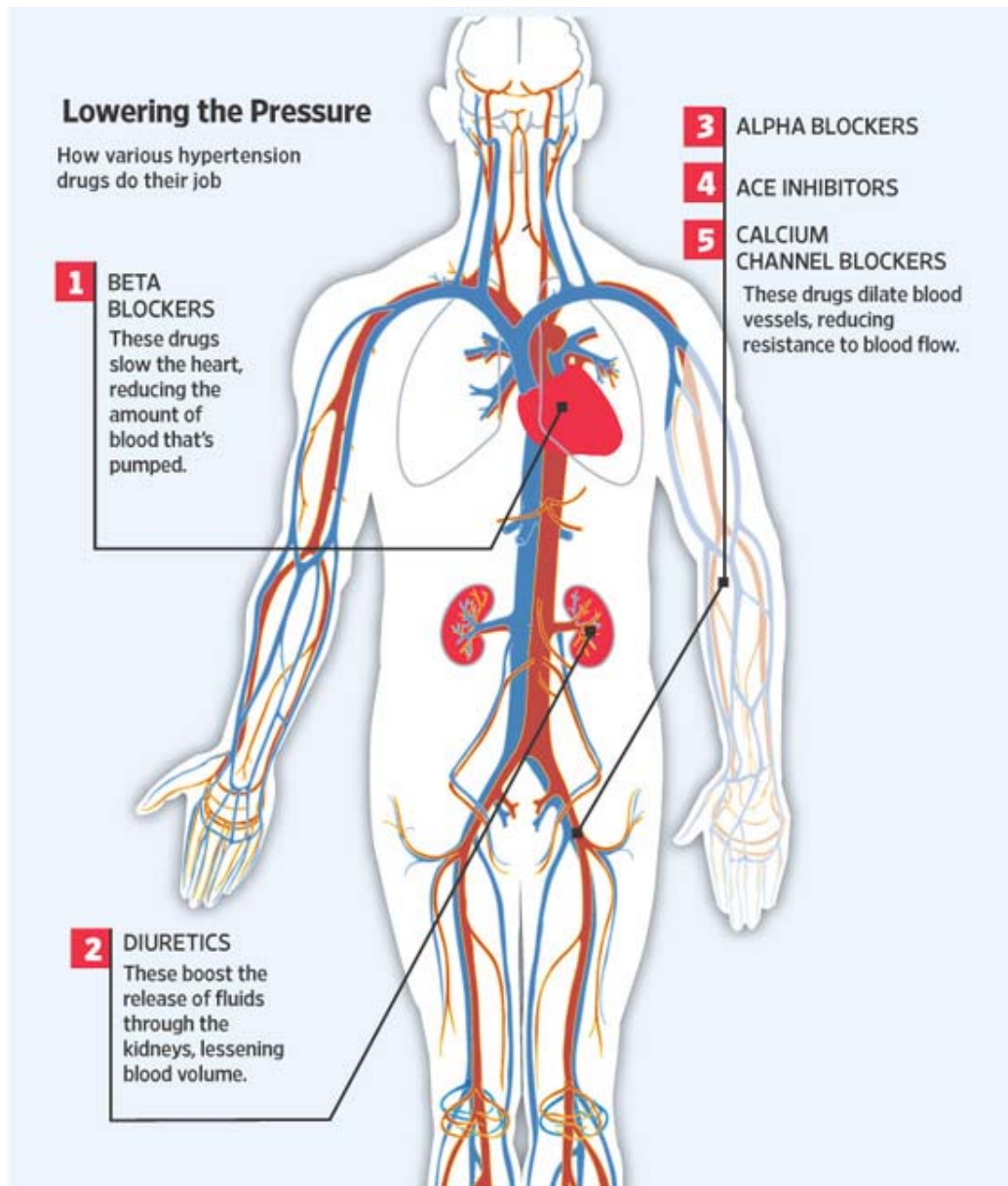
Nonetheless, one of the new studies, involving 363 patients, confirmed the 1970s finding, showing that measuring the renin level can be an effective method for selecting a blood-pressure medication. The research, by a team led by Stephen Turner of the Mayo Clinic in Rochester, Minn., found that a patient with a higher renin level probably should not be treated with a diuretic. The patient would probably respond better to a drug, such as a beta blocker, that functions differently in the body.

The predictive effects of renin activity "were statistically independent of race, age and other characteristics," the team's paper concludes. It found that renin levels could also serve as a guide for prescribing add-on therapies for some patients.

The third study, by a team led by Dr. Alderman, found that when an anti-renin drug was used in certain patients with low renin levels, it had the undesirable effect of increasing blood pressure. The study involved 945 patients.

"These are not fundamentally novel biological discoveries," says Morris Brown, professor of clinical pharmacology at the University of Cambridge, U.K., who wasn't involved in the studies. But they constitute "a wake-up call that we should be using renin measurements as a systematic form of help" for prescribing hypertension drugs.

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