Low-dose 'triple pill' lowers blood pressure more than usual care

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A pill combining low doses of three blood pressure-lowering medications significantly increased the number of patients reaching blood pressure targets compared with usual care, researchers reported at the American College of Cardiology's 67th Annual Scientific Session. There was also no significant increase in adverse effects with the "Triple Pill."

"Most people—70 percent—reached blood pressure targets with the Triple Pill. The benefits were seen straight away and maintained until six months, whereas with usual care control rates were 55 percent at six months and even lower earlier in the trial," said Ruth Webster, MBBS, of The George Institute for Global Health at the University of New South Wales in Sydney, Australia, and lead author of the study. "Based on our findings, we conclude that this new method of using blood pressure-lowering drugs was more effective and just as safe as current approaches."

Despite the availability of effective blood pressure-lowering drugs, high blood pressure remains a major problem around the world, Webster said. Effectively treating high blood pressure can help to prevent heart attacks, strokes and kidney problems. Globally, however, many people with high blood pressure receive no treatment, and only about a third of those who are treated achieve recommended reductions in blood pressure. Achieving desired reductions in blood pressure often requires treatment with more than one medication, which increases the complexity of treatment, and patients often have difficulty adhering to

regimens that involve taking multiple pills every day.

This study was the first large trial designed to test the theory that starting treatment with low doses of three drugs could achieve better blood pressure control compared with usual care and that combining these drugs in a single pill would make it easier both for doctors to prescribe treatment and for patients to adhere to it, Webster said.

The TRIUMPH trial, which was conducted in Sri Lanka, enrolled 700 patients whose average age was 56 years, 58 percent of whom were women. Trial participants had an average blood pressure of 154/90 mm Hg. Over half (59 percent) were receiving no treatment for high blood pressure before they enrolled in the trial. In addition to high blood pressure, 32 percent of participants had diabetes or chronic kidney disease.

Patients were randomly assigned to receive either the combination pill or usual care. The combination pill, or Triple Pill, consisted of the blood pressure medications telmisartan (20 mg), amlodipine (2.5 mg) and chlorthalidone (12.5 mg). These medications use different mechanisms to reduce blood pressure by relaxing the blood vessels, so the heart does not need to pump as hard to send blood throughout the body. Usual care meant that patients received their doctor's choice of blood pressure¬-lowering medication.

The trial's primary endpoint was the proportion of patients who achieved a blood pressure target of 140/90 mm Hg or less (130/80 mm Hg or less in those with diabetes or chronic kidney disease) at six months.

Compared with patients receiving usual care, a significantly higher proportion of patients receiving the Triple Pill achieved their target blood pressure at six months. The average reduction in blood pressure was 8.7 mm Hg for participants receiving the Triple Pill and 4.5 mm Hg

for those receiving usual care. At six months, 83 percent of participants in the Triple Pill group were still receiving the combination pill and one-third of those in the usual-care group were receiving at least two blood pressure-lowering drugs.

The maximum difference between the two groups of patients was observed at six weeks after starting treatment, when 68 percent of those receiving the Triple Pill had achieved a blood pressure within their target range, compared with 44 percent of those receiving usual care. This represented a 53 percent reduction in the risk for high blood pressure for patients receiving the Triple Pill, Webster said.

Rates of participants having to change treatment due to side effects were not significantly different in the two groups (6.6 percent for the Triple Pill, 6.8 percent for usual care). This should allay concerns that use of the three-drug combination pill could lead to an unacceptable increase in adverse medication side effects, Webster said.

Each of the drugs used in the Triple Pill has been shown to be highly effective in reducing blood pressure and preventing deaths and illness due to heart disease and strokes, she said. Each drug represents a different class of blood pressure medication and previous studies have shown that combining such drugs results in synergistic effects.

"The most urgent need for innovative strategies to control blood pressure is in low- and middle-income countries," Webster said. "The Triple Pill approach is an opportunity to 'leap frog' over traditional approaches to care and adopt an innovative approach that has been shown to be effective."

The study's findings are also important for high-income countries, she said.

"A control rate of 70 percent would be a considerable improvement even in high-income settings. Most hypertension guidelines in these countries do not recommend combination blood pressure-lowering therapy for initial treatment in all people," she said. "Our findings should prompt reconsideration of recommendations around the use of combination therapy."

An inevitable consequence of a necessarily unblinded study (where both participants and their doctors know whether participants are assigned to the Triple Pill or usual care) is that doctors might manage patients differently depending on the assigned treatment. However, it is important to note this trial was designed to evaluate a new strategy of care in a real-world setting, Webster said.

To minimize the risk of bias in measuring the main outcomes, the number of patient visits was identical in both groups and all outcomes were standardized and objectively documented, she said.

The researchers are now conducting a follow-up qualitative study to find out what participants and their doctors thought about using the Triple Pill. And they are conducting a cost effectiveness evaluation to determine whether the Triple Pill is a cost-effective solution for blood pressure control.

Recommended targets for blood pressure control vary by country. In the U.S., guidance released in 2017 by the ACC and the American Heart Association recommends initiating treatment if blood pressure exceeds 130/80 mm Hg. European guidelines recommend that treatment should aim to achieve a blood pressure level of 140/90 mm Hg or less.

Provided by American College of Cardiology