Women with pulmonary arterial hypertension have greater response to treatment than men

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Pulmonary arterial hypertension (PAH) patients of different sexes and races may respond differently to treatment with commonly used medications for the disease, says a new study from researchers at Perelman School of Medicine at the University of Pennsylvania.The results of the study are published online ahead of print in the journal *CHEST*.

"Over the past decade, treatment outcomes have improved for PAH patients as a group, but little is known about which patients are most likely to respond to specific treatments," said senior study author Scott Halpern, MD, PhD, MBE, assistant professor of Medicine and Epidemiology. "Our research has shown for the first time that differences in the behavior of the disease between men and women and between whites and blacks may lead to differences in patients' responses to treatment with commonly used PAH oral medications."

PAH is a disease in which the blood pressure in a patient's lungs becomes dangerously high. That high blood pressure puts a strain on the heart, leading to shortness of breath, leg swelling, and chest pain. PAH worsens over time and can be fatal.

The current study evaluated pooled data from six randomized placebo-controlled trials of endothelin receptor antagonists, or ERAs. ERAs were the first oral therapies approved by the FDA for use in PAH and

remain among the most commonly used drugs to treat the condition. A total of 1,130 patients were included in the analyses. The researchers specifically estimated the differences in the effect of treatment (ERAs vs. placebo) between men and women and between white or black patients in terms of the change in six-minute walk distance from baseline to 12 weeks.

The response to ERAs, relative to that of placebo, was more than twice as great among women as among men, and was much greater among whites than among blacks. "The available evidence certainly suggests that whites with PAH have stronger responses to these drugs than do blacks, but future research is needed to better understand how these drugs work among blacks, who have not been highly represented in studies to date," said study co-author Steven Kawut, MD, MS, associate professor of Medicine and Epidemiology and director of the Pulmonary Vascular Disease Program at Penn.

"In our study, women with PAH obtained the greatest response to the ERAs, and we also found that whites may experience a greater treatment benefit than blacks," said Nicole Gabler, PhD, MHA, the study's lead author and a post-doctoral researcher in Penn's Center for Clinical Epidemiology and Biostatistics. "This does not necessarily mean that patients or physicians should change their current treatment for PAH. However, the findings support the important possibility that biologic differences between sexes and races, or distinct characteristics in the disease that affects these subgroups, could lead to more effective therapies in the future."

The authors suggest that based on their observations, future studies are needed to explore the biologic underpinnings of PAH that account for why women and whites may show a greater response to ERA treatment and ways to optimally match the therapy to the patient.

More information: chestjournal.chestpubs.org/con … est.11-0404.abstract