HHS Public Access

Author manuscript

N Engl J Med. Author manuscript; available in PMC 2022 May 13.

Published in final edited form as:

N Engl J Med. 2021 July 01; 385(1): 92–93. doi:10.1056/NEJMc2107209.

Sotatercept for Pulmonary Arterial Hypertension

Peiran Yang, Ph.D., **Geoffrey A. Bocobo, B.S.**, **Paul B. Yu, M.D., Ph.D.**

Brigham and Women's Hospital Boston, MA

TO THE EDITOR:

Humbert et al. (April 1 issue)[1] report that in the PULSAR trial, sotatercept reduced pulmonary vascular resistance in patients with pulmonary arterial hypertension by correcting dysregulated activin–growth differentiation factor signaling.[2] Sotatercept is also effective in increasing hemoglobin levels in patients with β-thalassemia.[3,4] The PULSAR trial excluded patients with hemoglobin levels above 16 g per deciliter at initial screening and above 18 g per deciliter after at least one dose of sotatercept. Depending on the prevalence of anemia and polycythemia among patients with pulmonary arterial hypertension, the erythropoietic effects of sotatercept could be consequential.

We performed a cross-sectional analysis involving a cohort of 366 patients referred because of dyspnea. On catheterization, these patients were categorized as having World Health Organization (WHO) group 1 pulmonary arterial hypertension, WHO group 2 to 5 pulmonary hypertension, or no pulmonary hypertension. Among the patients with group 1 pulmonary arterial hypertension, 49.4% had anemia (hemoglobin level, <12 g per deciliter in women and <13 g per deciliter in men). Patients with pulmonary arterial hypertension had lower hemoglobin levels, hematocrits, red-cell counts, and mean corpuscular hemoglobin concentrations and higher red-cell distribution widths than controls who did not have pulmonary arterial hypertension; these findings are similar to those in previous studies.[5]

In most patients with pulmonary arterial hypertension in our cohort (93.7%), the hemoglobin level was 16 g per deciliter or less. These patients would be expected to have a margin for the treatment-mediated increases of 1.2 to 1.5 g per deciliter in the hemoglobin level observed in the PULSAR trial. Therefore, a large proportion of patients with pulmonary arterial hypertension may receive sotatercept without unacceptable erythropoietic effects, and they could potentially benefit from simultaneous treatment of underlying anemia.

Acknowledgments

Dr. Yu reports receiving consulting fees from Acceleron Pharma and receiving fees for serving as a scientific advisory board member from and being a stockholder of Keros Therapeutics. No other potential conflict of interest relevant to this letter was reported.

pbyu@bwh.harvard.edu .

References

1. Humbert M, McLaughlin V, Gibbs JSR, et al. Sotatercept for the treatment of pulmonary arterial hypertension. N Engl J Med 2021;384:1204–15. [PubMed: 33789009]
2. Yung L-M, Yang P, Joshi S, et al. ACTRIIA-Fc rebalances activin/GDF versus BMP signaling in pulmonary hypertension. Sci Transl Med 2020;12(543):eaaz5660. [PubMed: 32404506]
3. Dussiot M, Maciel TT, Fricot A, et al. An activin receptor IIA ligand trap corrects ineffective erythropoiesis in β-thalassemia. Nat Med 2014;20:398–407. [PubMed: 24658077]
4. Cappellini MD, Porter J, Origa R, et al. Sotatercept, a novel transforming growth factor β ligand trap, improves anemia in β-thalassemia: a phase II, open-label, dose-finding study. Haematologica 2019;104:477–84. [PubMed: 30337358]
5. Krasuski RA, Hart SA, Smith B, Wang A, Harrison JK, Bashore TM. Association of anemia and long-term survival in patients with pulmonary hypertension. Int J Cardiol 2011;150: 291–5. [PubMed: 20472313]