Letter by Kataoka et al Regarding Article, “Bone Morphogenetic Protein Receptor Type 2 Mutation in Pulmonary Arterial Hypertension: A View on the Right Ventricle”

To the Editor:
We read the recent article by van der Bruggen et al published in Circulation with great interest. In their study, right ventricular (RV) function was investigated in 95 patients with idiopathic or familial pulmonary arterial hypertension (PAH), in whom 28 patients (29.5%) had a BMPR2 mutation and 67 patients (70.5%) did not. Interestingly, despite a similar afterload, RV function was more severely impaired in the mutation carriers compared with the noncarriers, and importantly, the differences in RV function between carriers and noncarriers continued to exist after treatment. Previous large, retrospective studies have demonstrated that BMPR2 mutation carriers have an increased hemodynamic burden, accompanied by a shorter time to death or lung transplantation, compared with noncarriers. Therefore, the article by van der Bruggen et al is noteworthy because of the finding that RV function in PAH patients can be affected by BMPR2 mutations per se, regardless of the degree of pulmonary vascular impairment. Our group recently reported the latest data on BMPR2 mutations in Japanese patients with idiopathic or familial PAH, showing that the ratio of carriers is comparable between Japanese and white patients. We found that in PAH patients with severe clinical conditions needing prostaglandin I2 infusion, BMPR2 mutation carriers showed a better prognosis than noncarriers after the introduction of the prostaglandin I2 infusion, although RV function in these patients was not noted in our study. Considering the fact that RV function is the main determinant of prognosis in patients with PAH, these latest findings of van der Bruggen et al, together with our recent report, raise the following possibilities: (1) that RV function is more severely impaired in BMPR2 mutation carriers and the differences in RV function between carriers and noncarriers continue to exist after treatment in most patients, but the differences do not continue in patients with severe clinical conditions who need prostaglandin I2 infusion; (2) that the differences in RV function continue to exist after treatment, but pulmonary vascular involvement is more greatly improved in carriers compared with noncarriers, leading to the better prognosis in carriers despite their more suppressed RV function; or (3) that ethnicity contributes to the impact of BMPR2 mutations on outcome or response to therapy. A more detailed investigation of clinical phenotypes, responsiveness to drugs, and outcomes, focusing on genetic background, is necessary to determine the optimal management and individual treatment of PAH patients. Therefore, we strongly expect that these details will be elucidated by a larger worldwide collaborative study in the near future.

DISCLOSURES
None.

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REFERENCES


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