Impact of Riociguat on Health-related Quality of Life in Patients with Chronic Thromboembolic Pulmonary Hypertension

Davie N,1 Fritsch A,1 Ghofrani HA,2,3 Grimminger F,2 Hoepner MM,4 Kerr KM,5 Kim NH,5 Luong B,1 Mayer E,6 Simonneau G,7 Wilkins MR.5

1Bayer HealthCare, Germany; 2University of Giessen and Marburg Lung Center, Germany; 3Imperial College London, UK; 4Hannover Medical School, Germany; 5UCSD School of Medicine, USA; 6Kerckhoff Heart and Lung Center, Germany; 7University Paris-Sud, France.

BACKGROUND: In the Phase III CHEST-1 study, riociguat, a novel soluble guanylate cyclase stimulator, was evaluated in patients with inoperable chronic thromboembolic pulmonary hypertension (CTEPH) or persistent/recurrent CTEPH after pulmonary endarterectomy. The study met its primary endpoint, a significant change in 6-minute walking distance (6MWD) at Week 16 and the clinical efficacy of riociguat was also demonstrated across a range of secondary endpoints. Here, we evaluate the impact of riociguat on health-related quality of life (HRQoL) in patients with CTEPH.

METHODS: CHEST-1 was a 16-week, double-blind, randomized, placebo-controlled study. The pulmonary arterial hypertension (PAH)-disease-specific (Living with Pulmonary Hypertension [LPH]) questionnaire that has been validated for PAH but not CTEPH, and the generic EuroQol 5-Dimension (EQ-5D) and EQ-5D-Visual Analog Scale (EQ-VAS) questionnaires were completed by patients at baseline and Week 16. The change from baseline to Week 16 for the total population and sub-scores were examined. The relationship between HRQoL and other clinical endpoints (e.g. 6MWD and World Health Organization functional class) were also evaluated.

RESULTS: A total of 173 patients received riociguat (individual dose adjustment up to 2.5 mg three times daily) and 88 patients received placebo. At Week 16, riociguat treatment significantly improved the EQ-5D score, with an increase of +0.06±0.28 (mean±SD) compared with a decrease of −0.08±0.34 in patients receiving placebo (least-squares [LS] mean difference +0.13 [95% CI: 0.06 to 0.21]; p<0.0001). The EQ-VAS score also improved at Week 16 with riociguat treatment, with an increase of +10.5±23.4 in the riociguat group, but remained stable in placebo-treated patients (LS mean difference +10.0 [95% CI: 5.4 to 14.7]; p<0.0001). At Week 16, the LPH total score had improved by −6.7±18.6 in riociguat-treated patients and by −2.1±19.3 in placebo-treated patients compared with baseline (LS mean difference −5.8 [95% CI: −10.5 to −1.1]; p=0.12). Use of the LPH questionnaire in patients with CTEPH needs further validation.

CONCLUSIONS: Patients with CTEPH who were treated with riociguat reported significant improvements in HRQoL after 16 weeks of treatment compared with baseline, as measured by the generic EQ-5D and EQ-VAS scores. Smaller differences between riociguat and placebo treatment were observed with the LPH questionnaire.

TYPE: Clinical Science