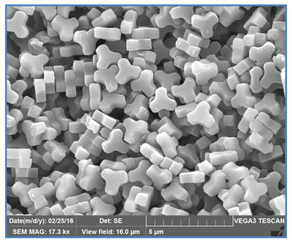
Quality of Life (QoL) in PAH Patients Receiving an Inhaled Dry Powder Treprostinil (LIQ861) in the INSPIRE Study

Martha Kingman[a] and Savan Patel[b]

[a]University of Texas Southwestern Medical Center at Dallas, Dallas, TX; [b]Liquidia Technologies, Morrisville, NC.

LIQ861 Dry-Powder Formulation

LIQ861 particles are 1.3 µm in size with trefoil shape



RS00 Model 8 Dry-Powder Inhaler

Compact, disposable inhaler previously approved by the FDA and EMEA

Background[1,3]

- Health-related QoL is severely impaired in patients with PAH, with better quality-of-life outcomes reported for patients administered therapies that improve functional outcomes, such as exercise capacity[1]
- Liquidia has developed LIQ861, a dry-powder formulation of treprostinil utilizing PRINT® Technology, designed to enhance deep-lung delivery and enable QID delivery of doses in 2 breaths per capsule via a convenient, palm-sized dry-powder inhaler (DPI). PRINT® Technology produces drug particles that are precise in size, shape, and composition[1]

Minnesota Living With Heart Failure® Questionnaire[3]

- The MLHFQ is a HRQoL questionnaire widely used by patients with HF. The MLHFQ is an instrument used to investigate HRQoL and evaluate patients' daily lives and well-being, which cannot be obtained directly from clinical endpoints
- The MLHFQ contains questions to determine how heart failure affects patients' well-being and other standard physical and social functions. The total score of the MLHFQ comprises scores provided from two dimensions, physical and emotional
- Patients respond to the MLHFQ on a scale from 0 (No) to 5 (Very Much) whether heart failure prevented them from living as they wanted during the past 4 weeks across a range of situations
- The 21 situations surveyed include:
  - *Causing swelling in your ankles or legs*
  - *Making you sit or lie down to rest during the day*
  - *Making your relating to or doing things with your friends or family difficult*
- Scan the QR code below to view the MLHFQ

INSPIRE Study Design[1,2]

- The INSPIRE trial was a Phase 3, open-label, multicenter trial (LTI-301) that enrolled patients with PAH ≥18 years of age who transitioned to LIQ861 from nebulized treprostinil or added LIQ861 to ≤2 non-prostacyclin oral therapies
- The MLWHFQ was administered at baseline, 2 months, and 4 months during the trial

Treatment Phase for Primary Endpoint Was Followed by Evaluation for Safety and Tolerability	
Subjects Overview	• WHO Group I (PAH) NYHA Class II, III, and IV; N≥100 • Divided into 2 groups
Prostanoid-Naïve (PCY-Naïve) ≤2 non-PCY oral PAH Rx	• Initiate LIQ861 26.5 µg capsule strength dose • Increase in 26.5 µg increments weekly to tolerance and symptom relief
Transitions From Tyvaso® Stable doses ≥3 mo.	• Initiate with comparable dose of LIQ861 • Titrate in 26.5 µg incremental doses to tolerance and symptom relief
Primary Objective	• Incidence of AEs and SAEs

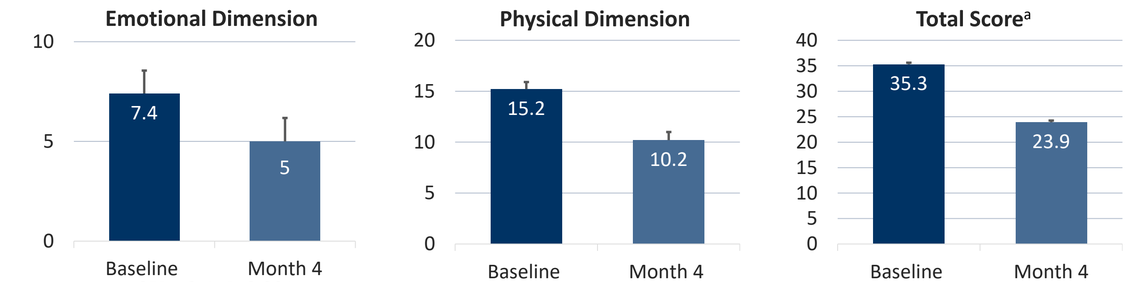
Demographics and Baseline Characteristics		Transitions (n=55)	PCY Naïve (n=66)	Overall (n=121)
Sex	Female	47 (85.5%)	52 (78.8%)	99 (81.8%)
Age (years)	Mean ± SD	53 ± 14.1	55 ± 14.6	54 ± 14.3
BMI (kg/m²)	Mean ± SD	30.07 ± 7.9	29.31 ± 7.8	29.66 ± 7.8
NYHA Functional Class at Screening	Class II	43 (78.2%)	37 (56.1%)	80 (66.1%)
	Class III	12 (21.8%)	29 (43.9%)	41 (33.9%)
PAH Duration (years)	Mean ± SD	7.25 ± 5.1	4.71 ± 5.1	5.87 ± 5.2
PAH Therapy at Screening	PDE5i alone	8 (14.5%)	12 (18.2%)	20 (16.5%)
	PGI2 alone	6 (10.9%)	-	6 (10.9%)
	ERA alone	5 (9.1%)	3 (4.5%)	8 (6.6%)
	sGC alone	-	2 (3%)	2 (3%)
	ERA + PDE5i	35 (63.6%)	46 (69.7%)	81 (66.9%)
	ERA + sGC	1 (1.8%)	3 (4.5%)	4 (3.3%)

Results[1]

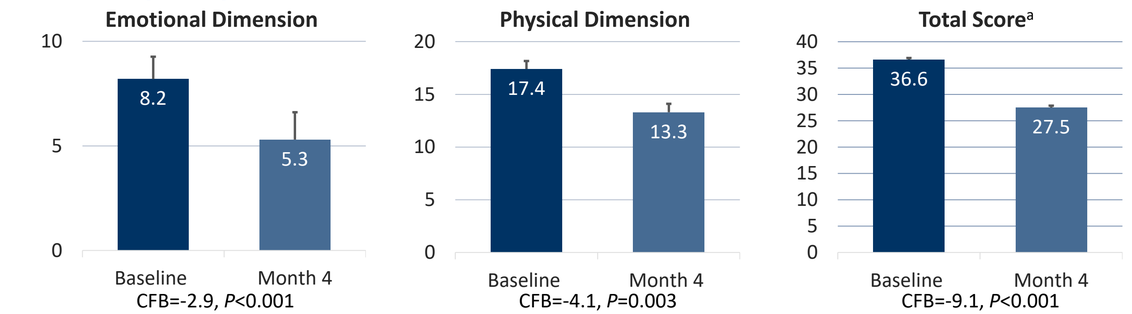
All Domains From MLWHFQ Improved at Month 4

Clinically meaningful improvement is defined as a >5 point reduction

Transitions (n=49)



PCY-Naïve (n=53)



- By month 4 (N=104), there was a clinically meaningful improvement[a] in the total MLWHFQ score for all patients from baseline. Overall, the mean score of 36.0 at baseline decreased to 25.8
- At month 4 (N=104), both physical and emotional dimension scores decreased from 16.2 to 11.8 and 7.8 to 5.2, respectively. Improvements were seen in both the Transition and Naïve patient groups

Conclusions[1]

Clinical Implication

Treatment with LIQ861 may help improve HRQoL, which has been shown to be impaired in PAH patients.

Liquidia™ CORPORATION

[a]Clinically meaningful improvement is defined as a >5 point reduction.

1. Liquidia Technologies. Data on file. 2. Investigation of the Safety and Pharmacology of Dry Powder Inhalation of Treprostinil (INSPIRE). ClinicalTrials.gov. Accessed May 6, 2022. https://clinicaltrials.gov/ct2/show/NCT03399604. 3. Rector TS, Kubo SH, Cohn JN. Patients' Self-Assessment of Their Congestive Heart Failure: Content, Reliability and Validity of a New Measure, the Minnesota Living With Heart Failure Questionnaire. Heart Failure 1987;3:198-209

AE, adverse event; BMI, body mass index; CFB, change from baseline; EMEA, European Medicines Evolution Agency; ERA, endothelin-1 receptor antagonist; FDA, Food and Drug Administration; HF, heart failure; HRQoL, health-related quality of life; MLWHFQ, Minnesota Living With Heart Failure Questionnaire; NYHA, New York Heart Association; PAH, pulmonary arterial hypertension; PCY naïve, prostanoid naïve; PDE5i, phosphodiesterase 5 inhibitor; PGI2, prostaglandin; PK, pharmacokinetic; QID, 4 times daily; Rx, prescription; SAE, serious adverse event; SD, standard deviation; sGC, soluble guanylate cyclase.