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Patient-Centric Adaptations for pheNIX Clinical Trial Evaluating HMI-102 Gene Therapy in Adults with PKU in the Era of COVID-19

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Introduction

In June 2019, Homology Medicines Inc. initiated pheNIX, a Phase 1/2 open-label, randomized, concurrently controlled, dose-escalation trial evaluating the safety and efficacy of HMI-102, a one-time gene therapy development candidate for the treatment of adults with PKU due to PAH deficiency. Less than one year later, the World Health Organization (WHO) formally declared COVID-19 a pandemic, which initiated the modification of public health care in the United States on a state-by-state basis. Many major healthcare centers across the United States began the conversion to COVID-19 testing and treatment sites were no longer allowed in-person clinic or research visits for non-life-threatening disorders. As a result, many clinical trials, including pheNIX, required logistical modifications to avoid trial hiatus or protocol deviations.

Methods

States of emergency due to COVID-19 were declared in multiple cities, including those where pheNIX clinical trial sites were located, creating an immediate need for study-related adaptations while maintaining protocol procedures. As study participants were administered a single administration of HMI-102, the clinical team at Homology engaged with pheNIX trial sites to quickly identify any unmet needs related to data collection and patient monitoring with the goal of developing mitigation strategies. These strategies included transitioning to a home health visit model to minimize study interruption and/or protocol deviations, all while maintaining patient safety as a top priority.

Results

Protocol-compliant modifications were identified and implemented, such as home health monitoring visits and lab collections. These changes required contracting and budgeting with phlebotomy and home health providers, identifying licensed professionals residing within the study patient's home state, creating educational materials and training these professionals on the study protocol. Additionally, study participants and their families were notified and trained to allow for proper coordination of all new home health visits and assessments. These modifications were initiated and in place within 20 days of initial discussions for the first home phlebotomy visit and by day 36 the first home health visit. Six patients have completed the 52-week dose-escalation portion of the study, and the Phase 2 dose expansion is ongoing. The majority of lab samples processed were collected in the patient's home, and other data inputs including vital signs, patient weight, patient questionnaires and corticosteroid compliance logs were and continue to be obtained in the patients' home environments.

Conclusions

The goal of continuity for the pheNIX gene therapy trial during the ongoing COVID-19 pandemic was accomplished with a rapid response by the clinical team in identifying the potential effect on study

participants, clinical trial sites and protocol compliance. Strategies were developed to mitigate the impact and, as a result, blood draws and home health visits were implemented within 20 and 36 days, respectively, of initial discussions, allowing for continued trial enrollment and post-dose monitoring for safety and efficacy, all while reducing the number of in-person study site visits.

This rapid shift to home health visits and lab assessments during the pandemic also led to a significant reduction in overall patient burden, primarily due to less travel time to the clinical study site for all routine visits. Homology is leveraging these important learnings with plans to continue administration of health visits and study assessments in patient's homes throughout the remainder of the pheNIX trial to foster a patient-centric approach and to optimize compliance. In addition, this well-received transition to home-based evaluations provides a patient-focused model that can be adopted in other clinical trials, particularly those that include patients with rare diseases who may be unable to commit to frequent visits to trial sites.