Cystinosis Research Foundation

Lay Abstract Template for Awardees

Please complete this lay-oriented grant abstract form which will be published on the CRF web site, in CRF Star Facts and in the CRF magazine when we announce your grant award. *Please do not exceed 400 words (no more than 1-1/4 page total).* Please submit this form electronically to nstack@cystinosisresearch.org as a Word document.

Principal Investigator (s):
Pr Pascal Laforêt, MD, PhD, Principal Investigator
Pr Hélène Prigent, MD, PhD, co-Principal Investigator
Hôpital Raymond Poincaré, Garches, France

Project Title: Improving characterization of neuromuscular involvement in adults with cystinosis

Objective/Rationale: Please write a lay-oriented statement of the scientific rationale for this project. Approximately 75-85 words.

Beside consequences of renal failure, long term prognosis of cystinosis seems to be importantly related to neuromuscular complications. The main manifestations of neuromuscular involvement have been described in previous studies, emphasizing on hand muscle weakness, respiratory insufficiency, and swallowing impairment. However, the long-term consequences and natural history of these symptoms remain an important issue, and in the era of early cysteamine treatment and new treatment formulations, muscular and lung evolution of adult patients with cystinosis remains unknown.

Project Description: Please write a brief, lay-oriented description of how you will carry out the project. Approximately 125-135 words.

In this project, we will explore thoroughly the neuromuscular complications of cystinosis, focusing on skeletal and respiratory muscles weakness, in a well characterized cohort of patients followed in Necker-Enfants-Malades hospital reference center for inherited renal disorders (Dr Aude Servais, Nephrologist).
Twenty patients will be recruited and evaluated in Raymond Poincaré hospital neuromuscular center, in order to assess muscle strength and function with standardized tools (Pr Pascal Laforêt, neurologist). Whole body muscle MRI will be performed in order to better describe the pattern of skeletal muscle involvement. Respiratory muscle damage will be investigated with specific pulmonary function explorations and systematic evaluation of its consequences on breathing efficiency (Pr Hélène Prigent, pulmonologist).
We will also analyze the swallowing function in patients complaining of swallowing difficulties, or with significant impairment rating after having completed a swallow questionnaire. Clinical tests will be performed at baseline and after one year.

We will correlate clinical and morphological neuromuscular complications with the other complications of the disease, renal function or transplantation, leukocyte cystine level, age at initiation of treatment and adhesion to treatment.

Relevance to the Understanding and/or Treatment of Cystinosis: Please explain how the project will impact cystinosis treatment or increase our understanding of cystinosis. Approximately 75-80 words.

This exploratory study of all dimensions of neuromuscular involvement in patients with cystinosis should provide new insights on pattern of skeletal muscle involvement, severity and determinants of neuromuscular complications of this lysosomal disease, and help improving care for patients.
The result of the respiratory and sleep evaluation will provide the opportunity to offer appropriate management when such disorders are identified. The extensive functional motor evaluation, with the systematic intervention of an occupational therapist, can lead to propose personalized rehabilitation support and care for patients, and then providing guidelines for detection and assessment of neuromuscular manifestations in cystinosis. The same conclusions may be anticipated for the swallowing function assessment.

Anticipated Outcome: Please write a lay-oriented description of what you expect to learn/discover. Approximately 75-80 words

We expect with this study to improve the knowledge of neuromuscular manifestations of cystinosis. Increased awareness and characterization of these potentially disabling symptoms should improve care of the patients by leading to a better and more specific management of these complications. This study should also help to identify outcomes measures which could be used in future clinical trials to assess the response of skeletal muscles to innovative therapies.