Open-label Study of Anakinra in MPS III

Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center, Torrance, California, United States

Sanfilippo syndrome, or mucopolysaccharidosis type III (MPS III), is a disorder of metabolism, associated with insufficient production of a lysosomal enzyme needed for normal cell function. As a consequence of the cellular dysfunction, patients with this disorder develop progressive, irreversible neurodegeneration. Sadly, to date no evidence-based treatments are available.

Inflammation has been connected with disease pathogenesis in the MPS disorders. Therapies aimed at decreasing inflammation are currently being studied in many MPS disorders and benefits in both brain and other parts of the body have been reported.Decreasing interleukin-1 (IL-1) in an animal model of MPS III showed benefits in brain disease and behavior. Thus, we think that anakinra (Kineret), which decreases IL-1 levels in the body, will improve behavioral and other problems in children with MPS III.

Anakinra is approved by the FDA for treatment of rheumatoid arthritis (RA) and neonatal-onset multisystem inflammatory disease (NOMID). It is not approved for any MPS disorder.

The design of this study is an open-label, single center, pilot study of 20 participants with MPS III. There will be an initial screening visit, followed by an 8-week observational period, then a 36-week treatment period, and finally another 8-week observational period to determine any effects of withdrawal from the treatment.

During visits the participants will undergo a medical history, a physical examination, and anthropometric measurements. Blood, urine, and stool will be collected for biomarker levels and safety laboratory studies. Questionnaires will be completed with questions related to behavior, stooling, sleep, and activities of daily living. Seizure and movement disorders will be monitored as well.

The most common risks of receiving anakinra, based on RA and NOMID experience, include local injection site reactions, headache, nausea, vomiting, arthralgia, and flu-like symptoms. The most serious potential risk is a serious infection and neutropenia. However, because so few people with MPS have been treated with anakinra, all the risks related to MPS patients receiving anakinra are not currently known. Additional risks related to taking part in the study include some pain, bruising, and/or bleeding due to blood draws/peripheral IV placement, and discomfort with completing some of the questionnaires.

The expected potential direct benefits include, but are not limited to, improved behavior, sleep, stooling, communication, mood, and gait; as well as decreased seizure frequency, disordered movement and fatigue. However, there is no guarantee that participants will get any benefit from being in this study.