



LifeShirt System in Study of Sickle Cell Anemia and Nocturnal Hypoxia

VENTURA, Calif., June 23 -- Researchers at Children's Hospital of Los Angeles commenced a study using VivoMetrics' LifeShirt(TM) System to examine the interplay between episodes of nocturnal hypoxia and sickle cell crisis. One of the long-term goals of the study will be to develop objective, physiologic indicators of crisis that can be used to evaluate the efficacy of new sickle cell therapies.

Current methods for assessing the severity of sickle cell crisis rely on self reported patient pain," said Dr. Thomas Coates, the principal investigator on the NIH-funded study. " But pain is a subjective measure, and damage can occur even when patients aren't feeling pain. With the LifeShirt System, we hope to correlate patterns in nocturnal breathing and blood oxygenation with crisis episodes that, though asymptomatic, may be causing long-term damage."

Forty patients between the ages of seven and 24 will be enrolled in the study. Each patient will wear the LifeShirt System during an overnight stay at the hospital. Blood will be drawn before sleep and immediately upon waking. The blood will be analyzed for the levels of a number of inflammatory mediators known to correlate with sickle cells crisis, and compared with data collected and analyzed by the LifeShirt System.

"Although we must carry out our initial studies in the controlled environment of the hospital, eventually we hope to take full advantage of the ambulatory nature of the LifeShirt System to evaluate patients in their own homes," said Dr. Coates.

Dr. Coates is an associate professor of pediatrics and pathology and section head of hematology at the Children's Center for Cancer and Blood Diseases, Children's Hospital of Los Angeles, which is part of the University of Southern California's School of Medicine. He has been studying the role of neutrophilmediated inflammation in the pathogenesis of sickle cell anemia and other genetic blood disorders for more than 15 years. Sickle cell anemia is an inherited blood disorder caused by a defect in hemoglobin, the red blood cell protein responsible for shuttling oxygen from the lungs to the body tissues. When the defective hemoglobin molecules give up their oxygen, they sometimes cluster together and form long, rod-like structures that cause the red blood cells to assume a stiff, sickle shape. The sickled red cells stack together, causing blockages that deprive the organs and tissue of oxygen-carrying blood. This process causes inflammation and progressive organ damage that can lead to serious medical problems and periodic episodes of intense pain.

Sickle cell anemia affects millions of people throughout the world. In the U.S. it is particularly common among people whose ancestors come from sub-Saharan Africa, occurring in approximately 1 in every 500 African-American births. However it is also common among people from Central and South America, the Middle East, Mediterranean countries and India.

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