New Research Grants Awarded

In pursuit of our ongoing mission, Conquer Chiari has awarded **four** new research grants totaling **$236,000** as a result of a recent meeting at the Conquer Chiari Research Center (CCRC).

The CCRC has quickly become the focal point for Chiari research in the scientific community and in November held a meeting which attracted a number of researchers from a variety of disciplines. At the meeting, several project ideas were presented and Conquer Chiari has selected four of them for funding:

1. MRI Based Classification of Chiari Malformation

Almost every Chiari patient knows that tonsillar herniation alone is not a good indicator of symptomatic Chiari. The question then becomes, is there another objective way to identify (or diagnose) symptomatic Chiari from MRIs? Dr. Malena Espanol of the Mathematics Dept. at the University of Akron believes there is. Dr. Espanol will apply what is known as Machine Learning to the problem. Basically, the idea is to input a large amount of data – in this case morphometric measurements from the MRIs of Chiairi patients and healthy controls – into a computer analysis, so the computer can learn how to distinguish between symptomatic and asymptomatic Chiari. Dr. Espanol's preliminary results are very encouraging, so Conquer Chiari has awarded her a $33,000 grant to continue her promising work. Developing an objective way to diagnose Chiari is one of Conquer Chiari's top research priorities.

2. Voices of Chiari: Advancing Chiari Research Through a National Patient Registry

The Conquer Chiari Patient Registry now has data from more than 1600 patients. To analyze this wealth of information, Conquer Chiari is awarding Dr. Michelle Chyatte and her colleagues at NEOMED a $90,000 grant. The project includes statistical analysis for professional publications, and the creation of a new website which will allow patients to compare themselves to the data in the registry. In addition the NEOMED team will perform in-depth qualitative research on patients and their families to better describe how Chiari impacts people.

3. The Developmental and Psychoeducational Impact of Chiari Malformation

Dr. Kevin Kaut, a professor in the Psychology Department at the University of Akron, and a former school psychologist will examine in depth the impact Chiari has on school age children and adolescents with a $53,000 grant. Specifically, Dr. Kaut will interview and assess Chiari patients in different age groups to gather data on their cognitive abilities and school experiences. By scientifically examining how Chiari affects children in school, Dr. Kaut believes he can then develop materials and guides for both parents and school officials to maximize Chiari children's participation in the school environment.

4. Metabolic and Inflammatory Alterations in Patients with Chiari Malformation

Many neurological conditions, such as MS, have been shown to involve significant changes in brain metabolism with indications of an inflammatory response. Dr. Leah Shriver, a professor in the Department of Chemistry and Biology at the University of Akron, will use a $60,000 grant to explore her hypothesis that Chiari patients, due to the tonsillar herniation and disrupted flow of cerebrospinal fluid (CSF) will show significant alterations in the metabolic profile associated with the central nervous system. Dr. Shriver is an expert in metabolomics and has studied the metabolic response associated with MS. Dr. Shriver believes that characterizing the metabolic response of CM patients will provide insights into the fundamental understanding of Chiari and also may provide an indicator of Chiari related pain.

These exciting projects only came about because of the hard work of the thousands who raise money for and donate to Conquer Chiari each year. The establishment of the CCRC has sparked a tremendous amount of interest in Chiari research and new types of researchers (such as chemists, psychologists, and mathematicians) are learning about and getting involved with Chiari each and every day. As more and more researchers join the battle, it is our hope that Chiari will finally receive the attention the community so deserves.

~Rick Labuda~