Workshop on Diffusion MRI in Traumatic Brain Injury:

Software Tools and International Shared Data Repository

Chair: Michael W. Vannier, MD (USA)

Sponsors:

Grant to University of Chicago from Telemedicine & Advanced Technology Research Center (TATRC)

National Institute of Neurological Disorders and Stroke (NINDS)

Federal Interagency Traumatic Brain Injury Research (FITBIR)

International Foundation for Computer Assisted Radiology and Surgery (IFCARS)

The workshop provided a platform for researchers from multiple disciplines to engage in a discussion on the challenges and potential of diffusion MRI software tools for evaluation of Traumatic Brain Injury (TBI). TBI is a major cause of death and disability globally and is considered a serious public health problem.

The international research community recognizes the importance of interdisciplinary collaboration to develop better diagnostic tools and treatments for traumatic brain injury (TBI). Informatics standardization of data elements and tools are sought together with the development of a shared data repository. An International Initiative for TBI Research (InTBIR) has been established and national efforts, such as the Federal Interagency Traumatic Brain Injury Research (FITBIR) informatics system in the USA, have been initiated.

The workshop includes presentations by experts with discussion of the challenges and opportunities by sponsors, computer scientists, biomedical engineers and medical physicists who develop and apply diffusion MRI software tools.

Topics for discussion include:

- Design and development of a TBI shared data resource
- Linking freeware diffusion MRI software tools with shared data repositories
- Policies and procedures that govern access and disseminate results
- Quality control and augmentation of the shared resource with longitudinal studies
- The potential for image-based biomarkers of TBI using diffusion MRI data

FITBIR Federal Interagency Traumatic Brain Injury Research INFORMATICS SYSTEM

NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE

TATRC

IFCARS International Foundation for Computer Assisted Radiology and Surgery

http://tbi.ci.uchicago.edu/diffusion-mri-tbi-workshop

CENTER-TBI: Comparative Effectiveness Research in TBI
TBI Standards: Common Data Elements
Andrew I.R. Maas - Antwerp University Hospital (Belgium)

Tools for the Delineation of Regional MR Diffusion Abnormalities in Individual Patients
Michael L. Lipton - Albert Einstein College of Medicine, Yeshiva University (USA)

Abnormalities That Are Not Depicted at Conventional MR
Quantitative Diffusion-Tensor Tractography Can Depict Detect Posttraumatic
Nina Brandstack – University of Turku (Finland)

Quantitative Tractography as a Clinical Diagnostic Method in TBI
Timo Kurki - Univ of Turku (Finland)

Imaging Biomarkers for Early Diagnosis of Traumatic Brain Injury
Lyubdomir Zagorchev – Philips (USA)

Modeling Brain Injury and Trajectory of Brain Changes from Longitudinal Multimodal Imaging
Guido Gerig – University of Utah (USA)

DTI-STUDIO Software for Image Processing
Susumu Mori - Johns Hopkins(USA)

CAMINO and DTI–TK Advanced Dissusion MRI Pipeline for Traumatic Brain Injury
Gary Hui Zhang - University College London (UK)

MedInria Neuroimaging Software System for Diffusion MRI
Olivier Comminowick - NRIA Rennes – Bretagne, (France)

Federal Interagency Traumatic Brain Injury Research (FITBIR)–
A Platform for International Collaboration
Ramona Hicks - NIH, NINDS (USA)

Federal Interagency Traumatic Brain Injury Research (FITBIR) Informatics System
Matthew McAuliffe - NIH, CIT(USA)

ACR-Siemens Traumatic Brain Injury Workstation Woftware Environment
Benjamin Odry -Siemens Corporate Research (USA)

Neuroimaging of Structural Pathology and Connectomics in Traumatic Brain Injury
Andrei Irimia – Laboratory of Neuro Imaging (LONI), UCLA, (USA)

DTI Image Processing Pipeline and Cloud Computing Environment
Kyle Chard - University of Chicago - Computation Institute (USA)

MITK – Medical Imaging Toolkit Software for DTI Processing
Klaus Maier-Hein - DKFZ Heidelberg (Germany)