The Problem

Currently it is difficult to determine what disease patients with early signs of dementia actually have. Phase III clinical trials for drugs to treat Alzheimer’s Disease have failed spectacularly in the past few years. One reason for these failures, is that trials must start when AD is well developed in order to ensure that trial subjects have AD. The consensus in the field is that trials must start earlier. How will we select patients?

Additionally, current drugs may prove more efficacious if we could give them earlier in the disease – there is a clinical need as well.

Solution

Ashish Raj has developed software, called “BrainWire” that analyzes medical images to differentially diagnose dementias, and to predict disease course. BrainWire is post-processing software, run on images acquired with a form of magnetic resonance imaging (MRI) called diffusion tensor imaging (DTI) that tracks the flow of water through axons.

The underlying biological understanding is the “prion model” of neurodegeneration – that the proteins that go wrong in these diseases can “infect” healthy proteins, leading to the spread of the disease through the brain.

Markets

BrainWire will be useful in the market for clinical medical imaging, and in the clinical trials market.

Both markets are highly cost-constrained. Medicare and other payors have been decreasing reimbursement for medical imaging. Even so, at $100/read, the tool will be useful for the 6M+ people with dementias.

For the clinical trials market – although pharma spends huge amounts on clinical trials – they are cost conscious on every contract and the market of service providers is fierce. However the regulatory bar is lower for this use, so this could be an early source of income.