Brain, blood and iron: Joint international conference on neuroacanthocytosis and neurodegeneration with brain iron accumulation

On October 1-2, 2010, over 70 scientists gathered in Bethesda, MD, for a two day meeting entitled “Brain, blood and iron: Joint international conference on neuroacanthocytosis and neurodegeneration with brain iron accumulation”. This meeting was organized by Susan J. Hayflick, MD, and Ruth H. Walker, MB, ChB, PhD, and was supported by the *Movement* Disorder Society, in addition to NINDS, ORDR, NICHD, and several patient groups – Advocacy for Neuroacanthocytosis Patients (UK), the NBIA Disorders Association (USA), Hoffnungsbaum e.V. (Germany), Associazione Italiana Sindromi Neurodegenerative da Accumulo di Ferro (Italy).

The meeting addressed pathogenic mechanisms in two groups of rare diseases primarily affecting the basal ganglia - neuroacanthocytosis (NA) syndromes and neurodegeneration with brain iron accumulation (NBIA). Hyperkinetic movement disorders, typically chorea and dystonia, are characteristic symptoms, in addition to cognitive and psychiatric impairment, and a variety of other neurologic features. One disorder, panthothenate kinase-associated neurodegeneration (PKAN) can be included in both groups of disorders, thus it was hypothesized that there might be common pathogenic pathways affecting both erythrocyte and neuronal membranes.

Genetic causes of most of these diseases have been identified, however, no common mechanism has yet emerged. In order to address the potentially diverse mechanisms of neuronal damage involved, scientists from a variety of disciplines convened. These included hematologists, molecular and cell biologists, biochemists, and neuroscientists. Topics addressed included the biology of iron, mitochondrial metabolism, autophagy, membrane trafficking, mechanisms of erythrocyte shape, and transgenic animal models. This symposium provided a forum for an international group of investigators to address potential disease mechanisms for these rare and neglected groups of neurodegenerative disorders. Seven early-career investigators were awarded scholarships to attend, to foster collaboration with more senior scientists in the field, and to support their continued contributions to the field.