July 2020 NIDUS Newsletter

Network for Investigation of Delirium: Unifying Scientists

NIDUS 2020 ADS Virtual Conference Overview

During the recent American Delirium Society Annual Conference, NIDUS held two virtual abstract sessions featuring research from former boot camp alums and pilot grant awardees. Many thanks to the meeting organizers for putting together a wonderful event!

NIDUS Pilot Abstract Session

Drs. Michael Avidan and Tom Robinson, Leaders of the NIDUS Pilot and Innovation Task Force, moderated the NIDUS Pilot Abstract Session. The presentations were authored by the awardees of the NIDUS Year 3 Pilot grants! The NIDUS pilot awardees were chosen from a highly competitive group of applicants.

Chemokine expression at the blood CSF barrier: investigating a causal role in acute cognitive dysfunction in a mouse model of delirium during dementia – Colm Cunningham, PhD

Dr. Cunningham's mouse model study examined where chemokines are made in the brain during systemic inflammation, which may be associated with delirium, and whether chemokine presence is associated with blood CSF barrier breakdown. The study found that systemic inflammation induces cytokines and chemokines in the choroid plexus and brain endothelium. In addition, CSF chemokines are associated with delirium in hip fracture patients but not associated with the breakdown of the blood CSF barrier.

Development of a machine learning algorithm for the automated prediction of postoperative delirium – Anne Donovan, MD

Dr. Donovan's study applied machine learning techniques to generate a postoperative delirium prediction model using static patient characteristics that are readily available at the beginning of a surgical case. Data from electronic health records (EHR) were used to train the first machine learning model on a truncated data set, then a gradient boosting machine (xgboost) algorithm was trained with 80% of the data. The performance of the model was tested on the remaining 20% of the data. A model predicting postoperative delirium using machine learning techniques performs better than the current clinical model (AWOL-S).

Genetic variation and predisposition to delirium: cohorts study of 318,000 older UK Biobank volunteers – Luke Pilling, PhD

and identify other genetic factors associated with increased risk of delirium. The study investigated the association between baseline serum vitamin D (25-OH-D) and incident delirium, performed Mendelian randomization genetic analysis in the participants of European descent to further investigate the causal effect of multiple risk factors, and performed a genome-wide association study on delirium to identify genetic variants. Low vitamin D levels are associated with increased risk of incident hospital- diagnosed delirium, and genetic evidence supports a causal role.
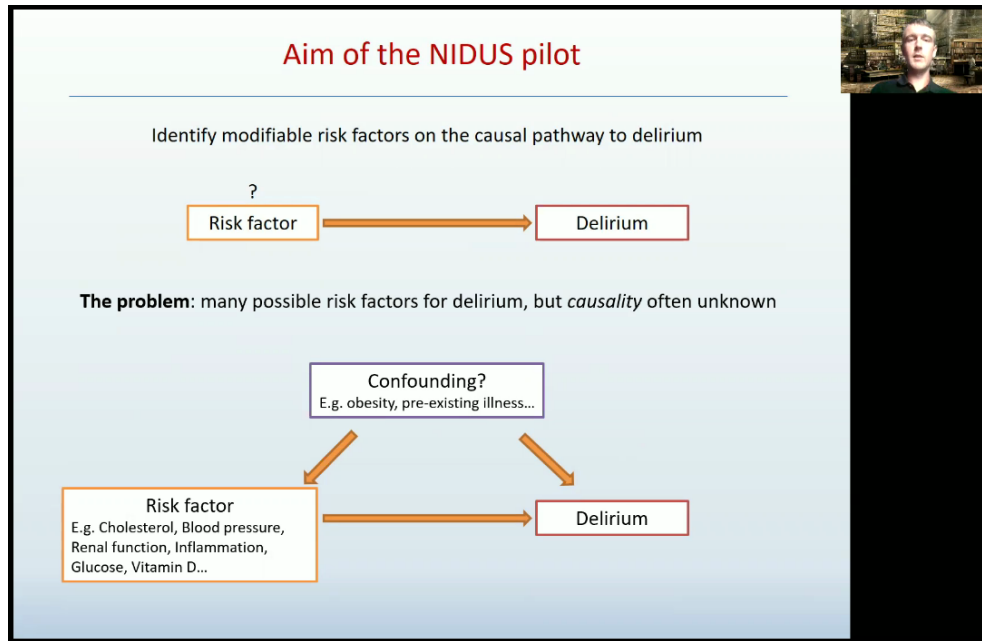
NIDUS Scientific Abstract Session

Dr. Sharon Inouye, NIDUS Principal Investigator, and Dr. Andy Auerbach, Co-Leader of the NIDUS Dissemination Task Force, moderated the NIDUS Scientific Abstract Session. These excellent presentations were all authored by alumni of the Delirium Boot Camp!

The ICU Family Education on Delirium (iFAM-ED) Study: Educating Family Caregivers of Critically Ill Patients to Prevent, Detect and Manage Delirium – Karla Krewulak, MD

Dr. Krewulak's study evaluated the effectiveness of an ICU delirium education intervention that prepares family members to work with the ICU to detect delirium symptoms and prevent/manage delirium with non-pharmacologic strategies. The pre-post quasi-experimental design utilized a video on ICU delirium, which reviewed delirium risk factor. This video-based ICU delirium education intervention was effective in educating family caregivers of critically ill patients on detection of delirium symptom and prevention and management of delirium using nonpharmacological strategies that was sustained at two weeks.

- Delirium is a common occurrence in critically ill patients
- Delirium affects family members, too (anxiety, helplessness)
- Family participation in patient care may reduce symptoms of anxiety
- Families can help, lack delirium knowledge

Disrupted cingulum integrity correlates with delirium outcomes following cardiac surgery – Ben Palanca, MD, PhD
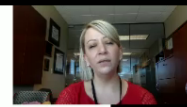
Dr. Palanca's study we hypothesized that delirium outcomes would correlate with diffusion markers of injury and inflammation within the cingulum and splenium of the corpus callosum. Using Diffusion tensor imaging, tract microstructural integrity was analyzed. Delirium outcomes of incidence, peak severity, and total duration were based on the Confusion Assessment Method and structured chart review. Associations between delirium outcomes and imaging measures were evaluated using generalized linear models. Diffusion imaging metrics of cingulum white matter integrity show potential in predicting delirium incidence and severity.
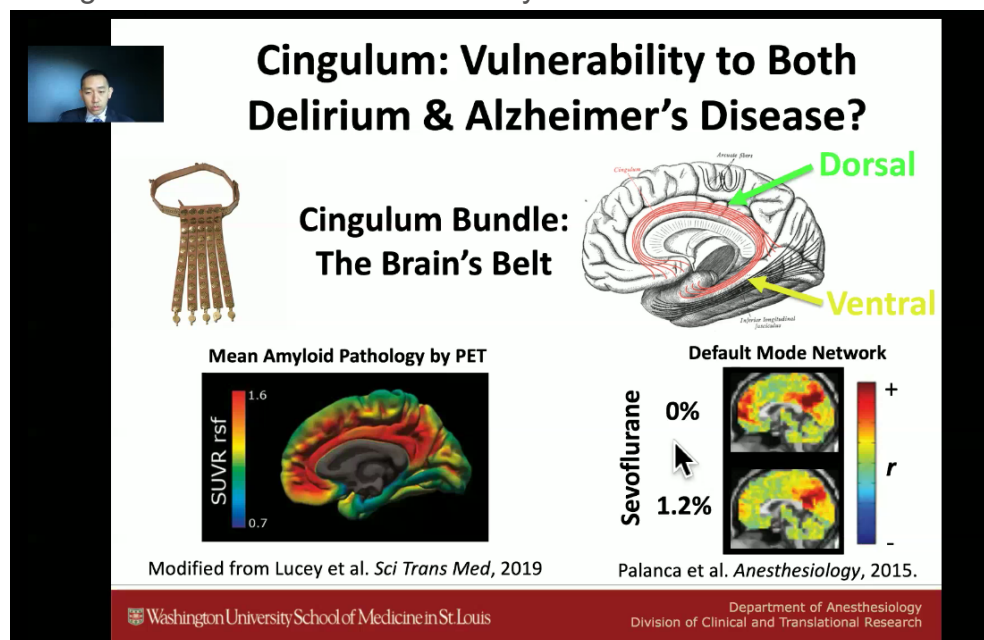
The Association between Brain Volumes and Posttraumatic Stress Disorder in Intensive Care Unit Survivors – Jo Ellen Wilson, PhD

analysis of the VISIONS study, a prospective sub-study of the BRAIN-ICU cohort, to evaluate the ICU as a traumatic experience and assess delirium. MRI scanning was used to compare median brain volumes at discharge and 3 months for those with and without PTSD symptomatology. The study did not reveal significant differences in brain volumes between PTSD patients and non-PTSD patients, and larger scale studies should be undertaken to elucidate possible neurobiological markers of PTSD in ICU survivors.

New Blog Posted!

Screening for delirium with the Confusion Assessment Method (CAM) written by Sharon K. Inouye, M.D., MPH; Richard N. Jones, ScD; Edward R. Marcantonio, M.D., SM, provides on overview of the CAM's uses, adaptations, and future. Stay tuned for the ultra-brief CAM assessment.

Check out it out here: https://deliriumnetwork.org/screening-for-delirium-with-the-confusion-assessment-method/

NIDUS Career Development Summer Webinar Series

Disseminating Delirium Research – all webinars are free and do not require pre-registration!

August 13th 12pm EST

Previous webinars were recorded and will be posted here: https://deliriumnetwork.org/career-development/

- "Pearls from a Journal Editors" – Dr. Donna Fick
- "How to Get Writing Done" – Dr. Sharon Inouye

2020 NIDUS Boot Camp Virtual Sessions Oct. 28-29

The 2020 NIDUS Boot Camp will be held virtually on October 28-29. The Boot Camp will include didactic session on a variety of delirium-specific research topics, as well as a mock grant review, CAM training and more. **Applications are due July 17, 2020.**

Application: https://deliriumnetwork.org/career-development/boot-camp-application/

New Publications

Vasunilashorn SM, Schulman-Green D, Tommet D, Fong TG, Hshieh TT, Marcantonio ER, Metzger ED, Schmitt EM, Tabloski PA, Travison TG, Gou Y, Helfand B, Inouye SK, Jones RN; the BASIL Study Team. New Delirium Severity Indicators: Generation and Internal Validation in the Better Assessment of Illness (BASIL) Study. Dement Geriatr Cogn Disord. 2020. Epub ahead of print.

Young J, Green J, Farrin A, Collinson M, Hartley S, Smith J, Teale E, Siddiqi N, Inouye SK. A multicenter, pragmatic, cluster randomized, controlled feasibility trial of the POD system of care. Age Ageing. 2020. Epub ahead of print.

Join NIDUS!

We encourage your mentees and colleagues to sign up and become a NIDUS member or just to receive our announcements/newsletter.

For more information on NIDUS, please visit our website.

Follow NIDUS on Twitter: @NIDUS_delirium

About NIDUS

NIDUS is a collaborative research network dedicated to spurring innovation and new advances in delirium research through development of new research and measurement resources, training opportunities, pilot funding and dissemination of information. It is funded through an award from the National Institutes of Health/National Institute on Aging (grant no. R24AG054259).

Find Out More

[View this email in your browser](#)

Want to change how you receive these emails?
You can update your preferences or unsubscribe from this list.

mailchimp