Oral abstracts

001 NEUROLOGICAL MANIFESTATIONS OF CORONAVIRUS DISEASE 2019: A COMPREHENSIVE REVIEW

[1,2]Jonathon Fanning, [1]Samuel Huth, [3]Sung-Min Cho, [4]Chiara Robba, [5]David Highton, [4,6]Denise Battaglini, [1,7]Judith Bellapart-Rubio, [8]Jacky Suen, [8,9]Gianluigi Li Bassi, [10]Fabio Taccone, [11]Rakesh Arora, [12]Glenn Whitman, [1,8]John Fraser. *[1]Faculty of Medicine, The University of Queensland, Brisbane, QLD, Australia; [2]Department of Neurology, Gold Coast University Hospital, Southport, QLD, Australia; [3]Neurosciences Critical Care Division, Departments of Neurology, Neurosurgery and Anesthesiology and Critical Care Medicine, Johns Hopkins University School of Medicine, Baltimore, MA, USA; [4]San Martino Policlinico Hospital, IRCCS for Oncology and Neuroscience, University of Genoa, Genoa, Italy; [5]Department of Anaesthesia and Perioperative Services, The Princess Alexandra Hospital, Woolloongabba, QLD, Australia; [6]Department of Medicine, University of Barcelona, Barcelona, Spain; [7]Adult Intensive Care Services, Royal Brisbane and Women's Hospital, Brisbane, QLD, Australia; [8]Critical Care Research Group, The Prince Charles Hospital, Chermside, QLD, Australia; [9]Institut d'Investigacions Biomediques August Pi I Sunyer, Barcelona, Spain; [10]Department of Intensive Care, Hôpital Érasme, Brussels, Belgium; [11]Cardiac Sciences Program, St. Boniface General Hospital Research Centre, Winnipeg, Manitoba, Canada; [12]Cardiac Intensive Care Services, Johns Hopkins Hospital and University, Baltimore, MA, USA*

10.1136/bmjno-2021-ANZAN.1

Background There is growing evidence that SARS-Cov-2 infection is associated with severe neurological complications. Understanding the nature and prevalence of these neurologic manifestations is essential for identifying higher-risk patients and projecting demand for ongoing resource utilisation. This review and meta-analysis report the neurologic manifestations identified in hospitalised COVID-19 patients and provide a preliminary estimate of disease prevalence.
Methods MEDLINE, Embase and Scopus were searched for studies reporting the occurrence of neurological complications in hospitalised COVID-19 patients.
Results A total of 2207 unique entries were identified and screened, among which 14 cohort studies and 53 case reports were included, reporting on a total of 8,577 patients. Central nervous system manifestations included ischemic stroke (n=226), delirium (n=79), intracranial haemorrhage (ICH, n=57), meningoencephalitis (n=13), seizures (n=3), and acute demyelinating encephalitis (n=2). Peripheral nervous system manifestations included Guillain-Barrè Syndrome (n=21) and other peripheral neuropathies (n=3). The pooled period prevalence of ischemic stroke from identified studies was 1.3% [95%CI: 0.9% – 1.8%, 102/7715] in all hospitalised COVID-19 patients, and 2.8% [95%CI: 1.0% - 4.6%, 9/318] among COVID-19 patients admitted to ICU. The pooled prevalence of ICH was estimated at 0.4% [95%CI: 0%-0.8%, 6/1006].
Conclusions The COVID-19 pandemic exerts a substantial neurologic burden which may have residual effects on patients and healthcare systems for years. Low quality evidence impedes the ability to accurately predict the magnitude of this burden. Robust studies with standardised screening and case definitions are required to improve understanding of this disease and optimise treatment of individuals at higher risk for neurologic sequelae.

002 SYNAPTIC ANTIBODIES AND SPINAL PREDOMINANT DEMYELINATION: A FORM OF MULTIPLE SCLEROSIS

John DE Parratt. *Royal North Shore Hospital, St Leonards, NSW, Australia*

10.1136/bmjno-2021-ANZAN.2

Objective To describe the clinical, radiological and pathological features of a novel demyelinating disease.
Methods 105 patients with multiple sclerosis (MS) were examined for phenotypic differences radiologically, and their sera were tested for novel autoantibodies using a solid phase, indirect, immunofluorescence method. The characteristics of patients that had a specific autoantibody in their sera, were compared to a cohort of 163 conventional MS patients (CMS).
Results Three of 105 (2.8%) MS patients had a serum autoantibody directed against vesicles of the Purkinje cell layer, synaptic molecules in the molecular layers of the cerebellum and hippocampus and the surface of choroid plexus epithelium. AQP4 and MOG antibodies were absent. Oligoclonal bands were absent in one patient. None of the other MS patients, 64 healthy controls or 78 other neurological controls exhibited this antibody.

Patients with synaptic antibodies had recurrent transverse myelitis, occasional optic neuritis and short, swollen cord lesions affecting the grey matter of the cord, in acute phase. Spinal cord demyelination was much more common in these patients (2.8 cord to 1 brain lesion) compared to CMS (1 cord to 5.8 brain lesions). Antibody positive patients suffered disease reactivation on Fingolimod (n=1) or responded poorly to Natalizumab (n=1). The disease was controlled with plasma exchange and Rituximab. The autoantibody bound to choroid plexus cells in culture from all three patients.
Discussion Synaptic antibodies and spinal predominant demyelination (SAPD) can be diagnosed with a new serological test and responds to treatment directed at humoral immunity.

003 AUTOIMMUNE ENCEPHALITIS ANTIBODY BIOMARKERS: FREQUENCY, AGE AND SEX ASSOCIATIONS

[1]Amy Kunchok, [2]Vanda Lennon, [2,3]Christopher Klein, [2,3]Eoin Flanagan, [2,3]Divyanshu Dubey, [2,3]Anastasia Zekeridou, [2,3]Andrew McKeon, [2,3]Sean J PIttock. *[1]Neurology, Cleveland Clinic, Cleveland, Ohio, USA; [2]Neuroimmunology Laboratory, Mayo Clinic, Rochester, Minnesota, USA; [3]Neurology, Mayo Clinic, Rochester, Minnesota, USA*

10.1136/bmjno-2021-ANZAN.3

Objective To determine the frequency, age and sex associations for autoimmune encephalitis antibody biomarkers (AE-Abs).
Methods There were 42032 patients tested in the Mayo Clinic Neuroimmunology Laboratory between January 2018-December 2019 for AE-Abs in serum and/or cerebrospinal fluid (CSF) including; NMDA-R-IgG, AMPA-R-IgG, GABAB-R-IgG, CASPR2-IgG, LGI1-IgG, GAD65-IgG, CRMP5-IgG, amphiphysin-IgG, PCA1/2/Tr-IgGs, ANNA1/2/3-IgGs, GFAP-α-IgG, mGluR1-IgG, DPPX-IgG, MOG-IgG1, were examined to determine frequency of antibody positivity. Age and sex associations were examined using multivariable logistic regression.
Results Adult serum analysis (22,472 patients; 56% female) revealed 814 (4%) were positive: NMDA-R-IgG (25%) > GAD65-IgG (22%) > LGI1-IgG (21%) > others. Of children (5,649; 50% female), 250 (4%) were positive: NMDA-R-IgG (53%) > MOG-IgG1 (32%) > GAD65-IgG (7%) > others.

Adult CSF analysis (18,745 patients; 54% female) revealed 709 (4%) were positive; NMDA-R-IgG (45%) > GAD65-IgG (19%) > LGI1-IgG (13%) > others. Of children (5136; 50% female), 276 (5%) were positive: NMDA-R-IgG (90%) > GAD65-IgG (7%) > others.