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PAMRINO: International MRI and clinical data repository for neuromyelitis optica spectrum disorder cohort description
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Abstract text
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Introduction
Neuromyelitis optica spectrum disorder (NMOSD) comprises a group of autoimmune diseases commonly affecting the optic nerves and spinal cord.
Objectives
Magnetic resonance imaging (MRI) practices in NMOSD are not standardised in different regions worldwide. Therefore, using clinical and MRI data collected for the PArallel MRI in NmOsd (PAMRINO) study, an initial international cohort description was conducted.
Aims
To systematically analyse demographic and MRI baseline data collected from NMOSD patients worldwide.
Methods
MRIs and associated clinical data were obtained from 17 international centres, representing 522 patients. Data were evaluated based on 35 designated radiological criteria targeting brain, optic nerves and spinal cord, relative to serological antibody status. This dataset was curated and analysed by specialised NMOSD clinical neuroradiologists and researchers.
Results
Within the cohort, 197 patients were diagnosed according to 2015 International NMOSD Criteria and had MRI and associated clinical data collected within 90 days; 113(57%) were AQP4-ab seropositive and 84(43%) were AQP4-ab seronegative at baseline. Only AQP4-ab seropositive patients were further analysed in this abstract. The patients had a mean age of 44.4 years and a female-to-male ratio of 88:12%. A high frequency of patients presented with abnormal cerebral MRI (85%), whereas findings characteristic for multiple sclerosis (MS) such as Dawson finger or U-fibre lesions, central vein sign (when MRI sequences were available, <6%), but also tumefactive lesion presentation (<6%) were rare. Lesion locations within periventricular (lateral ventricles) and juxtacortical white matter were common. Of the 92% of patients with spinal cord MRI, 64% had at least one cervical cord lesion; of those with cervical cord lesions, 64% had longitudinally extensive transverse myelitis.
Conclusions
In this international real-world collection of AQP4-ab seropositive NMOSD patient MRI and clinical data, we found a high incidence of periventricular, juxtacortical, and spinal cord lesions. The overlap with characteristic MS imaging findings was low, as was overall tumefactive lesion counts. Once validated, knowledge gained from this dataset may provide important new insights into imaging correlates of clinical disease that could differ in geographically distinct patient populations. Such information can aid prospective study recommendations for globally-standardised MRI criteria in NMOSD.
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EG is an employee of the Medical Image Analysis Center Basel, Switzerland.
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IT received personal compensation from Biogen, Merck Serono, Roche and Sanofi-Genzyme for speaker bureau and/or advisory board consulting, and travel funding from Teva, Merck Serono, Biogen and Sanofi-Genzyme. None related to this project.
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HA is a consultant for Biogen, Genentech, Sanofi-Genzyme, Celgene, Alexion, and Viela Bio. Research support from Novartis, Genentech, and Celgene.
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SB, SA are members of the ANZ NMO Collaboration, and: nothing to disclose related to this project.
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T.J.S. was issued U.S. patents for the use of inhibitors of IGF-IR in Graves' disease, TAO and other autoimmune diseases. These are held by the Los Angeles Biomedical Foundation and UCLA School of Medicine. He serves as a paid consultant for Horizon Therapeutics and Immunovant, receives research funding from the National Institutes of Health, and is an advisor to The Guthy-Jackson Charitable Foundation
AUB has patents for Retinal Image Analysis, Multiple sclerosis serum biomarkers, perceptive visual computing; Stock/stock options: Motognosis GmbH Nocturne GmbH, unrelated to this project.
JW is an employee of the Medical Image Analysis Center Basel, Switzerland and has consulted Actelion-Johnson&Johnson, Biogen, Genzyme-Sanofi, Idorsia, Novartis, Roche and Teva, and received funding from EU (HORIZON2020).
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