Results. The PCA model was able to distinguish the three classes of patients' samples (positive for COVID-19, negative controls, positive controls) with an overall accumulated variance of 94.27 percent. The PLS-DA model presented the best performance (accuracy, sensitivity, and specificity of 93%, 98% and 88%, respectively). Increased levels of the biomarkers uridine (linked to glucose homeostasis, lipid, and amino acid metabolisms), 4-hydroxyphenylacetoylcarnitine (metabolite from the tyrosine metabolism; probably associated with anorexia) and ribothymidine (resulting from oral and fecal microbiota alterations) were significantly associated with COVID-19.

Conclusions. Three different and updated ML-based algorithms were developed to predict COVID-19 diagnosis; PLS-DA led to the most accurate results. High levels of some metabolites were found as potentially predictors of the disease. These biomarkers should be further evaluated as potential therapeutic targets in well-designed clinical trials. These ML-based models can help the early diagnosis of COVID-19 and guide the development of tailored interventions.

PD34 Neuron-specific Biomarkers Associated With Neurological Manifestations In COVID-19: An Evidence Mapping Systematic Review

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Introduction. We aimed to map and synthesize the available evidence on neuron-specific biomarkers related to COVID-19.

Methods. A systematic review and qualitative evidence mapping synthesis was performed (PROSPERO-CRD42021266995). Searches were conducted in PubMed and Scopus, and complemented by manual search (July 2021). We included observational studies of any design assessing neurological biomarkers in adult patients (>18 years; with or without neurological comorbidities) diagnosed with COVID-19. Methodological quality of nonrandomized studies (case-control, cohorts) was assessed using the Newcastle-Ottawa Scale.

Results. Overall, 14 studies (n=485 patients) conducted in Sweden (n=4 articles, 28.5%), Germany (n=3; 21.4%), USA (n=3; 21.4%), Canada, France, Italy and Norway (n=1 study each) were included. The most reported neurological symptoms (n=13 studies, 92.8%) were headache, confusion, general weakness, loss of smell/taste, cognitive impairments and behavioral changes. Prevalent neurological conditions included encephalopathies, neuropathies, myopathies, and delirium; most critical cases presented cerebrovascular events (n=4 studies, 28.5%). Hypertension, diabetes, obesity, dyslipidemia, and chronic lung disease were the most reported comorbidities. Eight different neuron-specific biomarkers were found in primary studies: neurofilament-light chain – NfL (n=10 studies; 71.4%), glial fibrillary acidic-protein – GFAp (n=5; 35.7%), tau protein (n=5; 35.7%), neurofilament-heavy chain – NfH, S100B

protein, ubiquitin C-terminal hydrolase L1 - UCH-L1, neuron-specific enolase and beta protein-amyloid – Aβ (n=1 study each). These biomarkers were found both in cerebrospinal fluid and blood/plasma samples even without an evident cytokine storm. In patients with COVID-19, NfL and GFAp can act as sensitive indicators of neuroaxonal and astrocytic damages, respectively. Increased levels of NfL were significantly associated with severe COVID-19, unconsciousness and longer stay in the intensive care unit (p<0.05). Studies had an overall poor to moderate methodological quality.

Conclusions. We identified eight neuron-specific biomarkers that should be further studied as prognostic factors of COVID-19. These findings can also guide the development of targeted therapies against SARS-CoV-2. Additional well-designed clinical trials are needed to strengthen this evidence and help understand the mechanisms of neurological symptoms and sequelae after COVID-19 infection.

PD35 Mortality And Risk Factors Associated With Dialysis Patients With COVID-19 In A Brazilian Supplementary Health Service

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Introduction. Patients with chronic kidney disease (CKD) and COVID-19 are at high risk of adverse outcomes due to the presence of comorbidities. However, it is still unclear whether dialysis therapy is associated with a worse prognosis in patients infected with SARS-CoV-2. The objectives were to assess mortality and risk factors associated with a worse prognosis of these patients (e.g., age, sex, comorbidities, Intensive Care Admission [ICU] admission, and need for invasive mechanical ventilation [IMV]).

Methods. An observational, descriptive, retrospective study was conducted in the private healthcare maintenance organization (Unimed-BH) of Belo Horizonte and 33 surrounding cities in Brazil. We used data collected from the organization's database. We included adult inpatients with CKD on previous dialysis therapy who tested positive for COVID-19, from February 2020 to June 2021.

Results. During the period, 16182 patients were admitted to Unimed-BH with a diagnosis of COVID-19. Of these, 333 (2%) had dialysis CKD. Male patients were 180 (54%), age ranged from 22.85 to 95.75 years and the mean was 60.91 years. Of the 333 patients, 109 (32.7%) were admitted to the ICU, and 56 (16.8%) required IMV. Among the 14 comorbidities analysed, the mean number of comorbidities was 6, with 93 (27.9%) dyslipidaemia, 74 (22%) diabetic, 270 (81%) hypertensive, 25 (7.5%) asthmatic, 42 (12.6%) with