COVID-19 Pandemic

- Impact of COVID-19 on specialty televisits in a large integrated health care system
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- Aortic valve calcification in echocardiography is a prognostic factor for short-term adverse outcomes in elderly patients with severe COVID-19: a retrospective cohort study
- Sex differences on cerebrovascular complications in hospitalized COVID-19 patients: a meta-analysis
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- Shifts in Frailty in A Nationwide Cohort of Spinal Stenosis Patients in Germany During the COVID-19 Pandemic
- A prospective study of minimally invasive keyhole craniotomy and stereotactic brachytherapy for new brain oligometastases

COVID-19 is a serious infection that originated in Wuhan, China, and has resulted in worldwide morbidity and mortality. It continues to be a major health concern in 2022, being associated with multiorgan failure. Although the pathophysiology of the disease and its complications are not well understood, it is believed that a cytokine storm, triggered by complement activation may be responsible for the severity and complications of the disease. As of now, there is no definitive treatment available. Hematological changes associated with COVID-19 include lymphopenia, anemia, thrombocytopenia, disseminated intravascular coagulation, and thrombosis. Paroxysmal nocturnal hemoglobinuria (PNH), on the other hand, is an acquired clonal hematopoietic stem cell disorder that occurs due to an acquired PIG-A mutation affecting the hematopoietic stem cells. Interestingly, PNH exhibits some clinical and laboratory manifestations like those seen in COVID-19. Albalawi et al. present a rare case of PNH that developed following a COVID-19 infection [1)]

Agosti et al. reported a case of COVID-19 patient with acute monophasic Guillain-Barré syndrome (GBS), and a literature review on the SARS-CoV-2 and GBS etiological correlation.

Case description: A 68 years-old man presented to the emergency department with symptoms of acute progressive symmetric ascending flaccid tetraparesis. Oropharyngeal swab for SARS-CoV-2 tested positive. Neurological examination showed bifacial nerve palsy and distal muscular weakness of lower limbs. The cerebrospinal fluid assessment showed an albuminocytologic dissociation. Electrophysiological studies showed delayed distal latencies and absent F waves in early course. A diagnosis of Acute Inflammatory Demyelinating Polyradiculoneuropathy (AIDP) subtype of GBS was then made.

Neurological manifestations of COVID-19 are still under study. The case we described of GBS in COVID-19 patient adds to those already reported in the literature, in support of SARS-CoV-2 triggers GBS. COVID-19 associated neurological clinic should probably be seen not as a corollary of classic respiratory and gastrointestinal symptoms, but as SARS-CoV-2-related standalone clinical entities. To date, it is essential for all Specialists, clinicians, and surgeons, to direct attention towards the study of this virus, to better clarify the spectrum of its neurological manifestations [2)].

On 30 December 2019, a report of a cluster of pneumonia of unknown etiology was published on ProMED-mail, possibly related to contact with a seafood market in Wuhan, China [3].

Hospitals in the region held an emergency symposium, and support from federal agencies is reportedly helping to determine the source of infection and causative organism. The seafood market has since been closed, but purportedly sold a variety of live animal species. On 5 January 2019, the World Health Organization (WHO) published a document outlining their request for more information from Chinese public health authorities and detailed 44 patients had 'pneumonia of unknown etiology', with 121 close contacts under surveillance (www.who.int/csr/don/05-january-2020-pneumonia-of-unkown-cause-china/en/). The WHO reported that 11 patients were severely ill, and many affected individuals had contact with the Huanan Seafood market. Some patients were reported to have fever, dyspnea and pulmonary infiltrates on chest radiography [4].

It was declared a public health emergency of international concern on Jan 30, 2020, by WHO [5].

By early January, terms like “the new coronavirus” and “Wuhan coronavirus” were in common use. On February 11, 2020, a taxonomic designation “severe acute respiratory syndrome coronavirus 2” (SARS-CoV-2) became the official means to refer to the virus strain, that was previously termed as 2019-nCoV and Wuhan coronavirus. Within a few hours on the same day, the WHO officially renamed the disease as COVID-19.

The infection spread quickly and was declared a pandemic by the World Health Organization (WHO) on March 11, 2019 [6].

By March 30, more than 782 365 confirmed cases were reported and a third of the world population were living in confinement to try to contain the virus [7].

Epidemiology

COVID-19 Epidemiology.

Impact

To mitigate the potential consequences of the coronavirus disease 2019 (COVID-19) pandemic on public life, the German Federal Government and Ministry of Health enacted a strict lockdown protocol on March 16, 2020. This study aimed to evaluate the impact of the COVID-19 pandemic on physical and mental health status and the supply of medical care and medications for people with epilepsy (PWE) in Germany.

Methods: The Epi2020 study was a large, multicenter study focused on different healthcare aspects of adults with epilepsy. In addition to clinical and demographic characteristics, patients were asked to answer a questionnaire on the impact of the first wave of the COVID-19 pandemic between March and May 2020. Furthermore, the population-based number of epilepsy-related admissions in Hessen was evaluated for the January-June periods of 2017-2020 to detect pandemic-related changes.

Results: During the first wave of the pandemic, 41.6% of PWE reported a negative impact on their mental health, while only a minority reported worsening of their seizure situation. Mental and physical health were significantly more negatively affected in women than men with epilepsy and in PWE without regular employment. Moreover, difficulties in ensuring the supply of sanitary products (25.8%) and antiseizure medications (ASMs; 19.9%) affected PWE during the first lockdown; no significant difference regarding these impacts between men and women or between people with and without employment was observed. The number of epilepsy-related admissions decreased significantly during the first wave.

Conclusions: This analysis provides an overview of the general and medical care of epilepsy patients during the COVID-19 pandemic. PWE in our cohort frequently reported psychosocial distress during the first wave of the pandemic, with significant adverse effects on mental and physical health. Women and people without permanent jobs especially reported distress due to the pandemic. The COVID-19 pandemic has added to the mental health burden and barriers to accessing medication and medical services, as self-reported by patients and verified in population-based data on hospital admissions [8)].

Etiology

COVID-19 has high homology to other pathogenic coronaviruses, such as those originating from bat-related zoonosis (SARS-CoV), which caused approximately 646 deaths in China at the start of the decade.

The COVID-19 generally had a high reproductive number, a long incubation period, a short serial interval and a low case fatality rate (much higher in patients with comorbidities) than SARS and MERS. Clinical presentation and pathology of COVID-19 greatly resembled SARS and MERS, with less upper respiratory and gastrointestinal symptoms, and more exudative lesions in post-mortems. Potential treatments included remdesivir, chloroquine, tocilizumab, convalescent plasma and vaccine immunization (when possible) [9)].

Transmission

COVID-19 Transmission.

Symptoms

Most common symptoms: fever dry cough tiredness Less common symptoms: aches and pains sore throat diarrhoea conjunctivitis headache loss of taste or smell a rash on skin, or discolouration of fingers or toes Serious symptoms: difficulty breathing or shortness of breath chest pain or pressure loss of speech or movement

Complications

COVID-19 Pandemic complications

COVID-19 virus genome

The complete genome of SARS-CoV-2 from Wuhan, China was submitted on January 17, 2020 in the National Center for Biotechnology [10)] (NCBI) database, with ID NC_045512. The genome of SARS-CoV-2 is a 29,903 bp single-stranded RNA (ss-RNA) coronavirus. It has now been shown that the virus causing COVID-19 is a SARS-like coronavirus that had previously been reported in bats in China.

COVID-19 and central nervous system

COVID-19 and central nervous system.

Essential care of critical illness

Essential care of critical illness must not be forgotten in the COVID-19 pandemic [11)].

COVID-19 for Neuroanesthesiologists

COVID-19 for Neuroanesthesiologists.

COVID-19 for Neurologists

COVID-19 for Neurologists.

COVID-19 and Neurosurgery

COVID-19 and Neurosurgery

COVID-19 in Spinal Disorders

Effects of the COVID-19 Pandemic on the Management of Spinal Disorders.

COVID-19 for Vascular surgeons

see COVID-19 for Vascular surgeons.

COVID-19 for Dermatologists

COVID-19 for Dermatologists.

COVID-19 for Gastroenterologists

COVID-19 for Gastroenterologists

COVID-19 for Pediatricians

COVID-19 for Pediatricians

COVID-19 for Psychiatrists

COVID-19 for Psychiatrists.

COVID-19 for Oncologists

COVID-19 for Oncologists.

COVID-19 for Otolaryngologists

COVID-19 for Otolaryngologists.

COVID-19 for Cardiologists

COVID-19 for Cardiologists.

COVID-19 for Gynecologists

COVID-19 for Gynecologists.

Diagnosis

COVID-19 Diagnosis.

Treatment

COVID-19 Treatment.

Palliative Care

COVID-19 Palliative Care.

Prevention

COVID-19 Prevention.

Operating room preparation for COVID-19

see Operating room preparation for COVID-19.

Telemedicine in the COVID-19 era

see Telemedicine in the COVID-19 era.

Outcome

COVID-19 Outcome.

Research

A large number of COVID-19 imaging datasets have been deposited in public databases, leading to rapid advances in COVID-19 research.

Case series

In a single-center, retrospective study, Li et al. enrolled 113 critical patients with COVID-19 from Renmin Hospital of Wuhan University between February 1, 2020 and March 15, 2020. Patients who survived or died were compared.

A total of 113 critical patients with COVID-19 were recruited; 50 (44.3%) died, and 63 (55.7%) recovered. The proportion of patients with ventricular arrhythmia was higher in the death group than in the recovery group (P = .021) and was higher among patients with myocardial damage than patients without myocardial damage (P = .013). Multivariate analysis confirmed independent predictors of mortality from COVID-19: age > 70 years (HR 1.84, 95% CI 1.03-3.28), initial neutrophil count over 6.5 × 109 /L (HR 3.43, 95% CI 1.84-6.40), C-reactive protein greater than 100 mg/L (HR 1.93, 95% CI 1.04-3.59), and lactate dehydrogenase over 300 U/L (HR 2.90, 95% CI 1.26-6.67). Immunoglobulin treatment (HR 0.39, 95% CI 0.21-0.73) can reduce the risk of death. Sinus tachycardia (HR 2.94, 95% CI 1.16-7.46) and ventricular arrhythmia (HR 2.79, 95% CI 1.11-7.04) were independent ECG risk factors for mortality from COVID-19.

Old age (>70 years), neutrophilia, C-reactive protein greater than 100 mg/L and lactate dehydrogenase over 300 U/L are high-risk factors for mortality in critical patients with COVID-19. Sinus tachycardia and ventricular arrhythmia are independent ECG risk factors for mortality from COVID-19 [12).

Case reports

2019 novel coronavirus infection in a three-month-old baby [13).

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3 cases of SARS-CoV-2 infected children diagnosed from February 3 to February 17, 2020 in Tianjin, China. All of these three cases experienced mild illness and recovered soon after treatment, with the nucleic acid of throat swab turning negative within 14, 11, 7 days after diagnosis respectively. However, after been discharged, all the three cases were tested SARS-CoV-2 positive in the stool samples within 10 days, in spite of their remained negative nucleic acid in throat swab specimens. Therefore, it is necessary to be aware of the possibility of fecal-oral transmission of SARS-CoV-2 infection, especially for children cases [14).

Lv et al. reported the dynamic change process of target genes by RT-PCR testing of SARS-Cov-2 during the course of a COVID-19 patient: from successive negative results to successive single positive nucleocapsid gene, to two positive target genes (orf1ab and nucleocapsid) by RT-PCR testing of SARS-Cov-2, and describe the diagnosis, clinical course, and management of the case. In this case, negative results of RT-PCR testing was not excluded to diagnose a suspected COVID-19 patient, clinical signs and symptoms, other laboratory findings, and chest CT images should be taken into account for the absence of enough positive evidence. This case highlights the importance of successive sampling and testing SARS-Cov-2 by RT-PCR as well as the increased value of single positive target gene from pending to positive in two specimens to diagnose laboratory-confirmed COVID-19 [15).

Literature

see COVID-19 Literature

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