



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

ANOVA. Post-hoc analyses were Tukey corrected. A probability level of $p < 0.05$ was considered significant in every test.

Results: We found that male animals show already a clear anhedonic phenotype after the first week of stress and this is maintained also for the following weeks ($p < 0.001$). On the contrary, female animals need two more weeks of stress exposure to develop an anhedonic phenotype ($p < 0.001$). Moreover, we observed a sex-dependent susceptibility to chronic stress: while 70% of male animals showed a vulnerable phenotype, only 50% of female rats developed anhedonia as a consequence of chronic mild stress exposure. The chronic treatment with lurasidone was effective in normalizing the chronic mild stress-induced behavioural alterations in both sexes ($p < 0.001$), although male rats show a quicker response, as compared to females.

Conclusions: These analyses confirmed the deleterious effects of chronic mild stress exposure and provided further evidence on the key role of sex in the susceptibility to chronic stress. Furthermore, we demonstrate that lurasidone was highly effective in counteracting these impairments in both sexes. Ongoing molecular analyses of the cortical transcriptomic profile of these animals will provide key information on the mechanisms differentially modulated by chronic stress exposure and drug treatment in male and female animals. Characterizing sex differences in the ‘therapeutic’ mechanism of lurasidone may be instrumental to develop personalized approaches for correcting the pathological phenotype that may originate as a consequence of stress exposure.

Conflict of interest

Disclosure statement: This study has been supported by grants from the Italian Ministry of University and Research (PRIN 2017AY8BP4 and PON “Ricerca e Innovazione” PerMedNet project ARS01_01226) and by Sumitomo Dainippon Pharma Co. Ltd., although none of them had a role in study design, data collection, and analysis.

doi: [10.1016/j.euroneuro.2021.10.475](https://doi.org/10.1016/j.euroneuro.2021.10.475)

P.0504

Cognitive impairment in in-patients with COVID-19 pneumonia

O. Chaban, O. Khaustova, A. Asanova

Bogomolets National Medical University, Medical Psychology- Psychosomatic Medicine and Psychotherapy, Kyiv, Ukraine

Objective. COVID-19 is increasingly recognized as a systemic disease, and we are seeing more and more disorders of the nervous system, one of which is cognitive impairment, which has a significant negative impact on mental health, social maladaptation, quality of life [1]. Mental health disorders are closely related to COVID-19 at the biological, psychological, and social levels, and they are receiving more and more attention now [2]. Mental disorders may be the manifestations or complications of acute COVID-19, such as acute psychotic disorders, cognitive impairment, anxiety disorders, sleep disorders, depression, and suicide

attempts [2]. The study of cognitive impairment in patients with COVID-19 is the basis of neuropsychological rehabilitation for those who need it. It is important to urgently minimize the potential negative impact on cognitive and psychosocial functions and quality of life of patients with COVID-19 [3].

Methods. Cognitive function was examined using the MOCA test in 60 patients with COVID-19 viral pneumonia as part of psychiatric screening on admission to the hospital. The study group of patients was represented by 34 (57%) men and 26 (43%) women. The age of patients ranged from 35 to 81 years (mean age was 62.4 years). 55 patients (92%) from the study group denied the presence of any organic or other mental disorders. 2 patients (3%) reported a previously diagnosed depressive disorder, 1 patient (2%) reported a bipolar disorder, and 2 patients (3%) reported an anxiety disorder.

Results. 95% of inpatients with COVID-19 pneumonia had cognitive impairment of varying severity. Severe cognitive impairment was in 30% cases, in 47% - moderate -, in 18% - isolated, mild cognitive impairment, in 5% - no impairment. Data analysis shows both the presence of general cognitive dysfunction in patients with viral pneumonia COVID -19, and a more noticeable violation of its separate components: visual-spatial, executive functions, abstract thinking, attention, slow reproduction (long-term memory) ($p < 0.01$). The most noticeable were violations during the performance of tasks on visual-spatial, executive functions (2.25), abstract thinking (1.1), slow reproduction (long memory) (1, 7), attention (4.8,) ($p < 0.01$). It should be noted that almost all patients had no violation of recognition (3), orientation (5.8), and sequential subtraction (2.4) ($p < 0.01$).

Conclusions. A study of patients hospitalized with COVID-19 pneumonia revealed cognitive impairment of varying severity. In addition, the largest violations of individual components were identified, such as visual-spatial, executive functions, abstract thinking, attention, slow reproduction (long-term memory). Recognition, orientation, and sequential subtraction are almost intact. The dynamics of disorders of individual components of cognitive functions, such as recognition, orientation, sequential subtraction, differs significantly from dementia. In the acute period of COVID-19 disease, studies of cognitive function have been performed, which may indicate that cognitive impairment may have reversible consequences. Identified cognitive impairments were taken into account when drawing up individual plans for neuropsychological rehabilitation.

No conflict of interest

References

- [1] Attaway, A.H., Scheraga, R.G., Bhimraj, A., Biehl, M., Hatipoğlu, U., 2021. Severe covid-19 pneumonia: pathogenesis and clinical management. *BMJ* 372.
- [2] Khaustova, E.A., Chaban, O.S., 2021. Farmakoterapiya psicheskikh rasstrojstv, associrovannyh s COVID-19. *Psihiatriya, psihoterapiya i klinicheskaya psihologiya* 12(1), 85-105. doi: [10.34883/PI.2021.12.1.008](https://doi.org/10.34883/PI.2021.12.1.008)
- [3] Lahiri, D., Ardila, A., 2020. COVID-19 pandemic: a neurological perspective. *Cureus* 12 (4), e7889.

doi: [10.1016/j.euroneuro.2021.10.476](https://doi.org/10.1016/j.euroneuro.2021.10.476)