



Remissvar Del 2 av Socialstyrelsens två försäkringsmedicinska beslutsstöd för covid-19 respektive postcovid med fokus på vägledning om sjukskrivning

Svenska Läkaresällskapet (SLS) är läkarkårens oberoende, vetenskapliga professionsorganisation, en ideell, partipolitiskt och fackligt obunden förening. Vårt syfte är att verka för förbättrad hälsa och sjukvård genom att främja vetenskap, utbildning, etik och kvalitet.

SLS har getts tillfälle att lämna synpunkter på denna snabbremiss som vi skickade ut till SLS föreningar och delegationer/kommittéer. I beredningen av SLS svar fick vi in åtta svar: *Svenska infektionsläkarföreningen* (svar bifogas), *Svenska Psykiatriska föreningen* (svar bifogas), *Svenska Sällskapet för Dermatologi och Venereologi*, *Svensk förening för anestesi- och intensivvård*, *Svensk Förening för Allmänmedicin* (svar bifogas), *Svensk Förening för Nuklearmedicin*, *SLS kommitté för medicinsk språkvård* och *Föreningen för Arbets- och miljömedicin* (svar bifogas). Fyra av dessa svarade att de inte har några synpunkter, fyra lite längre svar bifogas.

Sammanfattning

SLS anser att del 2 av beslutsstödet är välformulerat och välavvägt. Det skulle vara en fördel att tydligare betona att tillstånd med ökad uttrötthet är vanligt efter akuta allvarliga infektionssjukdomar och att dessa tillstånd har god prognos men att återhämtningstiden är individuell, från enstaka veckor till många månader (ibland mer än ett halvår). En hänvisning till Socialstyrelsens kunskapsstöd vad gäller postcovid bör övervägas. SLS anser att det är bra att det tydliggörs i dokumentet att patienter med annan samsjuklighet kan kräva särskild bedömning och i vissa fall vara i behov av längre tids sjukskrivning. Detta gäller även psykiatrisk samsjuklighet. SLS anser att det bör tydliggöras i dokumentet att det även efter sjukhusvård som inte krävt IVA vård kan krävas längre återhämtningstid än några veckor. I många fall kan det snarare röra sig om månader. Det är med rådande kunskapsläge nödvändigt att ange ganska vida tidsintervall. Slutligen vill SLS påminna om vikten av att tidigt involvera företagshälsovården vid misstanke om att återhämtningsprocessen kan bli långvarig.

Om beslutsstödet

Specifika kommentarer

I tredje stycket står "även när det inte finns några virusrester kvar i kroppen". Bör omformuleras, förslagsvis till "även när SARS-CoV2 virus inte längre kan påvisas med känsliga metoder".

Begreppet postcovid är endast en definition för att underlätta studier av långvariga symtom, och avser kvarstående symtom efter 12 veckor oavsett funktionsnivå. Det kan finnas svårigheter att använda det som begrepp i detta sammanhang och riskerar att sätta en arbiträr gräns som ger sken av att alla kvarvarande symtom efter 12 veckor blir mycket långvariga.

För Svenska Läkaresällskapet

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6. Svensk Förening för Nuklearmedicin
7. SLS kommitté för medicinsk språkvård
8. Föreningen för Arbets- och miljömedicin - Bifogas



Svenska Infektionsläkarföreningens svar på snabbremiss Försäkringsmedicinskt beslutsstöd – vägledning om sjukskrivning för covid-19 respektive postcovid

Svenska Infektionsläkarföreningen har tagit del av ”Snabbremiss Försäkringsmedicinskt beslutsstöd – vägledning om sjukskrivning för covid-19 respektive postcovid” och vår bedömning är att man tydligare bör signalera osäkerheten angående tidsaspekterna. Vårt förslag är att man skriver enligt följande:

- För patienter som får intensivvård på grund av covid-19-infektion kan arbetsförmågan vara helt nedsatt upp till två-tre månader eller längre, efter utskrivning från sjukhus. Partiell sjukskrivning för gradvis återgång i arbete eller annan sysselsättning kan därefter behövas och i många fall kan det vara lämpligt.
- Samsjuklighet/tillhörighet till riskgrupp kan innebära att funktionsnedsättningar och aktivitetsbegränsningar kvarstår under lång tid (>tre-sex månader) och kan motivera längre sjukskrivning (se även Socialstyrelsens underlag för riskgrupper).

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För Svenska Infektionsläkarföreningen

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Vetenskaplig sekreterare

2021-05-04

Remissvar: Del 2 av det försäkringsmedicinska beslutsstödet för **covid-19** (inkl. de patienter som fått intensivvård med respiratorbehandling) samt Del 2 av det försäkringsmedicinska beslutsstödet för **postcovid**.

Svenska Psykiatriska Föreningen (SPF) tackar för möjligheten att yttra sig över rubricerade remiss och lämnar följande synpunkter:

SPF instämmer i sin helhet gällande den försäkringsmedicinska informationen gällande **covid-19** samt vägledning om sjukskrivning.

Gällande den försäkringsmedicinska informationen gällande **postcovid** instämmer SPF även här med tillägget att det är viktigt att också ta patientens premorbida psykiatriska status i beaktande vid den samlade bedömningen, samt värdera eventuella komorbida psykiatriska tillstånd som kan kräva individuell planering och behandling.

SPF vill även uppmärksamma på en studie (Zhou 2020, se bilaga), dock med begränsat antal studiepersoner, som kan tyda på en nedsatt förmåga till att upprätthålla uppmärksamhet över tid, påvisat med datoriserad kognitiv testning, bland tidigare covid infekterade patienter. Denna kognitiva påverkan kan ge särskilda svårigheter hos en psykiatrisk population som redan innan infektionen hade svårigheter i vardagen pga begränsad uppmärksamhetsförmåga (exempelvis med ADHD, eller med svagare intellektuella funktioner). Detta kan ge sig i uttryck i kognitiv överbelastning/överkrav hos en redan skör population, vilket kan leda till ångestrelaterade symptom som kan färga både komorbida tillstånd, med också utgöra en suverän entitet av symptombild som vetenskapen ännu inte vet durationen och rehabiliteringsförloppet på.

För Svenska Psykiatriska Föreningen

Cave Sinai

Ledamot och remissansvarig

Bilaga:

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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.

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The landscape of cognitive function in recovered COVID-19 patients

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ABSTRACT

This study aims to evaluate the impacts of COVID-19 on cognitive functions in recovered patients and its relationship with inflammatory profiles. Twenty-nine patients recovered from COVID-19 as confirmed by negative nucleic tests for two consecutive times were recruited. A total of 29 age-, gender- and education-matched healthy controls were also recruited. The cognitive functions of all subjects were evaluated by the iPad-based online neuropsychological tests, including the Trail Making Test (TMT), Sign Coding Test (SCT), Continuous Performance Test (CPT), and Digital Span Test (DST). Blood samples from all patients were collected for examining inflammatory profiles, including interleukin-2 (IL-2), IL-4, IL-6, IL-10, tumor necrosis factor- α (TNF- α), interferon- γ (IFN- γ), and C-reactive protein (CRP). The relationship between cognitive functions and inflammatory profiles were analyzed by Pearson correlation. In results, although no significant differences were found in TMT, SCT, and DST between the two groups, patients with COVID-19 scored lower in the correct number of the second and third parts of CPT, they also scored higher in the missing number of the third part of CPT (all $P < 0.05$). In patients with COVID-19, there was a trend of significant difference for lower reaction time in the first and second parts of CPT ($P = 0.050$, and 0.051 , respectively), as well as the lower correct number of the second part of CPT ($P = 0.050$). Correlation analysis showed that the reaction time for the first and second parts of CPT was positively correlated with the CRP levels ($r = 0.557$ and 0.410 , $P < 0.05$). In conclusion, our findings indicated that cognitive impairments exist even in patients recovered from COVID-19, and might be possibly linked to the underlying inflammatory processes.

1. Introduction

Since December 2019, a novel coronavirus, Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), has emerged in Wuhan, Hubei Province, China. The outbreak of this infection caused by SARS-CoV-2 was officially named as Coronavirus Disease 2019 (COVID-19) by the World Health Organization (WHO) (Lai et al., 2020). Plenty of studies have suggested human-to-human transmission of SARS-CoV-2 through droplets or direct contact (Carlos et al., 2020; Chang et al., 2020; Wang et al., 2020). Due to the SARS-CoV-2 infection surges in the public and associated substantial burdens worldwide, the WHO declared a global public health emergency (Liu et al., 2020). Almost all medical and social

resources in China were devoted to mitigating the public health crisis. Although the epidemiological and clinical features of COVID-19 patients are currently well characterized, little attention has been paid to the psychological impact of SARS-CoV-2, such as cognitive function.

Public health emergencies, including influenza A (H1N1), Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS), are likely to cause adverse neuropsychiatric impacts. It has been reported that most of SARS patients had the common complaints, such as poor concentration, declined memory, and insomnia, as well as anxiety and depression symptoms, indicating cognitive impairments after SARS infection (Sheng et al., 2005a). These psychiatric morbidities might be still significant even when patients infected with

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SARS recovered physically (Tsang et al., 2004). Several clinical symptoms of COVID-19 patients were similar with SARS and MERS (Yap et al., 2018). Interestingly, a recent study has reported that COVID-19 patients might also suffer from anxiety, fear, and other mental health problems (Xu et al., 2020). Moreover, fever, cough, fatigue and gastrointestinal symptoms might worsen psychological distress as well (Zhang et al., 2020). In patients with depression or anxiety disorder, the clinical manifestations were associated with cognitive deficits as well (Culpeper et al., 2017). However, it remains unknown whether the SARS-CoV-2 infection is associated with cognitive dysfunction.

It has been revealed that inflammatory cytokines and CRP played an important role in the development of SARS manifestations (Sheng et al., 2005b). Moreover, inflammation may persistently exist after viral clearance (Peiris et al., 2003). As expected, SARS-CoV-2 particles spread through the respiratory mucosa and infected other cells, causing changes in peripheral immune cells and eliciting a cascade of immune responses, finally resulting a detrimental cytokine storm (Chen et al., 2020). Recent evidence has suggested that clinical symptoms were associated with inflammatory factor storms and elevated CRP levels in COVID-19 patients (Huang et al., 2020). Plenty of studies have also implied that inflammation activation is inextricably linked to cognitive dysfunction (Chakrabarty et al., 2019). A prior study conducted by Paulo de O. Duarte (2017) showed that higher levels of inflammation were common in demented older subjects with worse cognitive function (Duarte et al., 2017). In addition, the involvement of inflammatory molecules in cognitive development has been previously demonstrated (Magalhaes et al., 2018). Several studies have shown that a critical role of inflammation was involved in the pathological process of mild cognitive impairment (Shen et al., 2019). Therefore, a potential linkage between inflammatory status and cognitive function in patients with COVID-19 is worth investigating.

In this context, the aim of this study was to evaluate the cognitive function in recovered COVID-19 patients and to investigate the potential relationship of serum levels of inflammatory factors and CRP with cognitive function. Even though a full neuropsychological evaluation is required to characterize cognitive strengths and weaknesses, simpler approaches may also be adequate in detecting cognitive decline (Brouillette et al., 2019). With the recent advancements in internet technology, the valid Web-based cognitive assessment tool can be slightly modified and validated to effectively screen for cognitive impairment in clinical settings (Hafiz et al., 2019). Given that human-to-human transmission of SARS-CoV-2 is confirmed, we conducted iPad-based online neuropsychological tests to minimize the contact between medical staff and patients with COVID-19. The tests evaluated attention, memory, executive functioning, information processing speed, visuo-spatial processing, and psychomotor function. We chose recently recovered patients as participants to diminish the adverse impacts of their regular treatment process on cognitive function. In addition, those who were severely ill were unable to finish this cognitive evaluation.

2. Methods

2.1. Participants

This study included patients with COVID-19 who met the diagnostic criteria in The First Affiliated Hospital, Zhejiang University School of Medicine. A total of 29 patients aged from 30 to 64 years were recruited, including 18-male and 11-female patients. The inclusion criteria were as follows: 1) cases met the set diagnostic standard of COVID-19 of testing negative at least twice for the nucleic acid tests; 2) education level ≥ 9 years (completed at least a junior middle school level of education); 3) Han ethnicity; 4) right-handedness; and 5) can complete the test content independently. A total of 29 age-, gender-, and education-matched healthy volunteers were recruited from the Sixth Hospital of Peking University. The general exclusion criteria for all participants included:

1) a history of mental disorders or current treatment for mental illnesses, such as taking antipsychotics, antidepressants, mood stabilizers, anti-epileptics, benzodiazepines and other drugs that may interfere with the assessment; 2) severe physical illnesses that may interfere with assessment; 3) a history of drug abuse or drug dependence; 4) have serious suicide thoughts; 5) pregnant or lactating women; and 6) have hearing or visual impairments.

The study was approved by the Ethics Committee of The First Affiliated Hospital, Zhejiang University School of Medicine. All the subjects voluntarily participated in the study and were briefed on the aims, methods, and potential risks. Moreover, the subjects were informed they were at liberty to quit the study at any time, with an additional examination.

2.2. Demographic and clinical assessments

The tests were completed for all subjects by fully trained psychiatrists with consistent training courses in the First Affiliated Hospital, Zhejiang University School of Medicine. Demographic and clinical data were collected using a questionnaire designed for all participants. The severity of anxiety and depression symptoms were respectively self-reported by the Anxiety Screening Scale (GAD-7) and the Patient Health Questionnaire-9 (PHQ-9).

2.3. Neuropsychological tests

Most neuropsychological assessments generate measurements of function in several cognitive domains, including attention and memory function, processing speed, executive function, and perceptual abilities. An iPad-based online tool used in the study included the Trail Making Test (TMT), Sign Coding Test (SCT), Continuous Performance Test (CPT), and Digital Span Test (DST). This tool was developed by the Sixth Hospital of Peking University, and the tests contained therein have been verified for reliability in the Chinese population (Shi et al., 2015). The patients and healthy controls took the Neuropsychological tests last, after finishing all the other items.

1. The TMT examines the trajectories of visual scanning and visual movement, reflecting the information processing speed of the subjects. Participants were required to quickly draw lines to connect consecutively numbered circles in ascending order. The task completion was measured in seconds. On the iPad, Test duration is set at 300 s, and the number of errors, as well as time taken to complete the test, are recorded. Any subject who stops midway is requested to continue the test for the remainder of the test duration. If not completed within the time limit, it is recorded as an error.
2. The SCT is used to investigate visual perception, visual scanning, eye movement, and memory. This test requires participants to compare the standard template, select numbers that are paired with different symbols and fill in the spaces. The test score is computed by subtracting the number of errors from the number of correct entries filled in within 90 s. The numbers are filled on the iPad within 90 s, and the results are recorded. Each correct entry is awarded a point, and the maximum score is 110 points.
3. The CPT measures continuous and selective attention, and impulse. It is divided into 3 parts. First (CPT 1), the subject is shown a series of animal pictures and is expected to click the “Same” button if two successive images are similar. In the second part (CPT 2), a pair of animal pictures is displayed and the subject is expected to click the “Same” button if two successive image pairs are similar. In part three (CPT 3), the number of animal pictures displayed per view is three, and test instructions are similar to the previous parts. This test measures the correct detection rate, error detection rate, missed detection rate, and the average response time of the three parts. The results are recorded on the iPad.

4. The DST focuses on concentration, instantaneous memory, and resistance to information interference. These include the forward and backward count tests, where an iPad reads out a series of numbers to the test participant. Participants are then required to repeat these numbers in the same order or in the reverse order. A point is awarded for each test passed, and zero for a failed test. The highest scores in the forward count test and backward count test are 16 and 14 points, respectively. Therefore, the highest total score is 30 points.

2.4. Serum sample collection and analysis

Venous blood sample (3 ml) was collected from each patient the next morning after admission. The blood samples were centrifuged at 3500 r/min for 15 min, and serum extracted for analysis. The IL-2/IL-4/IL-6/IL-10/TNF- α /IFN- γ detection kit from ACEA was used to detect the expression of cytokines in blood samples. The kits contain capture microspheres with different fluorescence intensities. It can be specifically combined with human cytokines, and the cytokines can be distinguished by analyzing the fluorescence intensity of the captured microspheres by the flow cytometer platform. At the same time, the fluorescence intensity of each cytokine complex can be analyzed separately to obtain the content of each cytokine in the tested sample. Determination of CRP was done using either Roche cobasc701 automatic biochemical analyzer, or CRP detection kit (latex enhanced turbidimetric method, batch number: 201502400432). This kit uses latex to enhance immune turbidimetry.

2.5. Statistics

All analyses were carried out using the Statistical Package for the Social Sciences (SPSS), version 24 (IBM Corp., Armonk, NY). All data are presented as mean $\pm$ standard deviation. Group differences in demographic data and neuropsychological variables were evaluated using the independent sample *t*-tests. The Mann–Whitney *U* test was used as a nonparametric equivalent of the Student's *t*-test for non-normally distributed data. Correlations between inflammatory levels and the clinical characteristics were assessed using the Pearson correlation analysis. All results were quoted as 2-tailed *P* values, with statistical significance set at *P* < 0.05.

3. Results

3.1. Demographic characteristics

The demographic and clinical characteristics of the 29 patients (47.00 $\pm$ 10.54 years; 18 males and 11 females) and 29 healthy controls (42.48 $\pm$ 6.94 years; 12 males and 17 females) were outlined in Table 1. There were no significant differences with regard to age, gender, and education levels between the two groups. In the patient group, the self-reported severity of depression and anxiety as evaluated by the PHQ-9

Table 1
Demographic and baseline clinical characteristics.

	COVID-19 patients (N = 29)	Control (N = 29)	<i>t</i> / χ^2	<i>p</i>
Age (years)	47.00 $\pm$ 10.54	42.48 $\pm$ 6.94	1.927	0.060 ^a
Gender (male/female)	18/11	12/17	2.486	0.115 ^b
Education (years)	12.59 $\pm$ 2.78	12.38 $\pm$ 3.14	0.265	0.792 ^a
PHQ-9	4.20 $\pm$ 3.98			
GAD-7	4.28 $\pm$ 4.05			
CRP	19.98 $\pm$ 25.29			

^aThe *P*-values were obtained by two-sample *t*-tests.

^bThe *P*-value was obtained by a chi-square test.

**P* < 0.05.

and GAD-7 was 4.20 $\pm$ 3.98 and 4.28 $\pm$ 4.05, respectively.

3.2. Neuropsychological testing results

Results were based on the four modules namely TMT, SCT, CPT and DST. For CPT, the COVID-19 patients had a lower correct number CPT 2 and CPT 3 compared with the controls (9.83 $\pm$ 1.93 vs 8.21 $\pm$ 1.90, *P* = 0.002). CPT 2 and CPT 3 also had a higher missing number in the patient group compared with the controls (41.55 $\pm$ 2.90 vs 39.59 $\pm$ 2.31, *P* = 0.028; 40.38 $\pm$ 3.10 vs 38.45 $\pm$ 2.13, *P* = 0.002). In addition, there was a trend of significant difference in the reaction time of CPT 1 and CPT 2 (774.59 $\pm$ 119.33 vs 843.22 $\pm$ 140.97, *P* = 0.050; 817.06 $\pm$ 114.53 vs 879.59 $\pm$ 123.87, *P* = 0.051) and correct number of CPT 2 (7.07 $\pm$ 2.4 vs 8.72 $\pm$ 1.79, *P* = 0.050). However, there was no significant difference between the two groups in TMT, SCT, or DST. The details are presented in Table 2.

3.3. Associations between inflammatory levels and neuropsychological tests

The average serum concentration of CRP was 19.98 $\pm$ 25.29 mg/L in the patient group. Further statistical tests revealed no statistically significant correlation between IL-6, IL-10, TNF- α , INF- γ and the CPT tests. Nevertheless, the correlation analyses showed that the reaction time of CPT 1 and CPT 2 was positively correlated with the CRP levels (Fig. 1).

4. Discussion

To the best of our knowledge, this is the first study on cognitive aspects of COVID-19 patients. The main findings in this study were that COVID-19 patients exhibited cognitive dysfunction in sustained attention domain as revealed by CPT. A potential correlation between serum CRP level and reaction time in CPT was also reported.

The present results are consistent with currently available data on patients with viral infection. Cognitive dysfunction in patients with viral infection has been commonly reported in prior studies. For example, in a study evaluating the effects of viral factors on neurocognitive performance in 347 Human Immunodeficiency Virus (HIV) positive and 395 seronegative adult Cameroonians found that individuals infected with

Table 2
Results of neuropsychological tests in all participants.

Measure	COVID-19 patients (N = 29)	Controls (N = 29)	<i>t</i>	<i>p</i>
Trail Making Test	47.82 $\pm$ 16.55	49.76 $\pm$ 21.53	−0.383	0.703
Sign Coding Test	32.14 $\pm$ 9.02	34.48 $\pm$ 13.31	−0.784	0.432
Digital Span Test	19.24 $\pm$ 5.36	18.97 $\pm$ 5.23	0.198	0.843
Continuous Performance Test				
CPT part 1				
Correct Number	9.83 $\pm$ 1.93	10.21 $\pm$ 2.62	−0.627	0.533
Error Number	0.41 $\pm$ 0.63	0.97 $\pm$ 2.61	−1.106	0.273
Missing Number	39.76 $\pm$ 1.96	38.83 $\pm$ 3.56	1.235	0.222
Reaction time	774.59 $\pm$ 119.33	843.22 $\pm$ 140.97	−2.001	0.050
CPT part 2				
Correct Number	7.07 $\pm$ 2.45	8.72 $\pm$ 1.79	−2.938	0.050
Error Number	1.38 $\pm$ 1.59	1.66 $\pm$ 2.19	−0.549	0.586
Missing Number	41.55 $\pm$ 2.90	39.59 $\pm$ 2.31	2.857	0.006*
Reaction time	817.06 $\pm$ 114.53	879.59 $\pm$ 123.87	−1.996	0.051
CPT part 3				
Correct Number	6.34 $\pm$ 2.50	8.21 $\pm$ 1.90	−3.198	0.002*
Error Number	3.28 $\pm$ 1.85	3.34 $\pm$ 2.32	−0.125	0.901
Missing Number	40.38 $\pm$ 3.10	38.45 $\pm$ 2.13	2.765	0.008*
Reaction time	868.24 $\pm$ 99.73	879.10 $\pm$ 197.08	−0.265	0.792

**P* < 0.05.

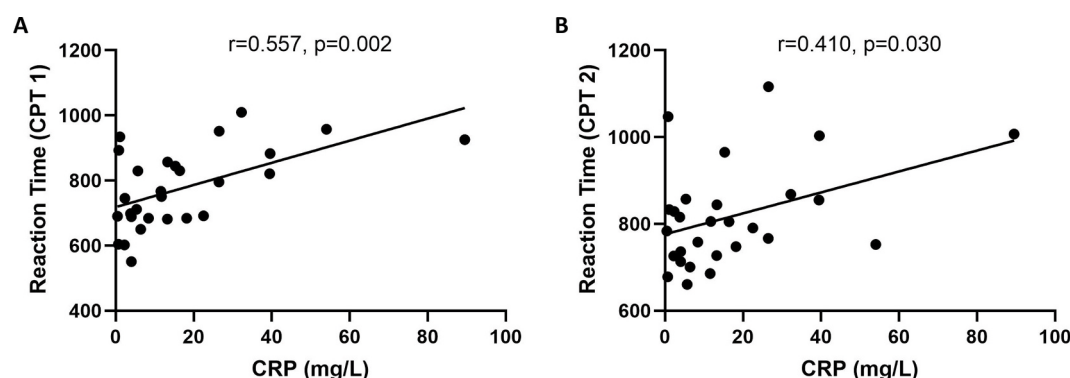


Fig. 1. The correlation analyses revealed that serum CRP level was associated with the reaction time of CPT 1 (A), and CPT 2 (B), respectively.

HIV had impaired attention, learning, and memory functions (Kangmogne et al., 2020). Similarly, Another study showed that Zika virus (ZIKV) infection had a profound impact on long-lasting neurodevelopmental consequences, inducing cognitive deficits (Raper et al., 2020). Moreover, virus infection that involves the central nervous system (CNS) and cardiopulmonary failure may be associated with neurologic sequelae, delayed neurodevelopment, and reduced cognitive functioning (Chang et al., 2007). In the present study, only some parts of CPT tests showed significant group differences which might suggest that the cognitive impairments in patients with SARS-CoV-2 infection were mild and mainly located in sustained attention domain. However, this study evaluated the immediate effects of SARS-CoV-2 infection on cognitive function since the neuropsychological assessments were done during a short period after the COVID-19 patients recovered, usually two to three weeks after infection. Thus, longitudinal studies should be designed in this area to appraise the long-term influence of SARS-CoV-2 infection on cognitive function.

Further, we demonstrated that there is a significant correlation between continuous attention function changes and CRP levels at the time of admission in COVID-19 patients. This finding was in line with the result of a previous study that reported a significant association between hs-CRP concentration and long-term cognitive decline in a large sample from wave 7 (2014–2015) of the English Longitudinal Study of Ageing (Zheng and Xie, 2018). In light of studies indicating a significant correlation of CRP levels with verbal fluency and executive function (Vintimilla et al., 2019), our present finding is interesting. Besides, a separate study has identified high serum CRP level as a risk factor for depression related to Chronic Obstructive Pulmonary Disease (COPD) (Xu and Li, 2018). Collectively, these findings imply that several aspects of cognitive impairments could be associated with CRP. Although the underlying mechanisms of the CRP and cognitive impairment association is unclear, CRP is associated with the inflammatory process. Moreover, a previous study suggested that CRP has an early effect on frontal lobe functioning (Vintimilla et al., 2019), such as sustained attention (Han et al., 2019; Mitko et al., 2019). These findings could inform other researches seeking to predict the cognitive function of COVID-19 patients by measuring the CRP level. Further work is however needed to assess the long-term impact of the SARS-Cov-2 on cognitive function in COVID-19 patients.

The present study is an observational cross-sectional study which assessed the cognitive functions in patients with COVID-19, and its relationship with inflammatory profiles. However, the following limitations should be taken into account when interpreting our findings. Firstly, the study sample size was relatively small, thus we might have missed some subtle functional changes in cognitive functions. Secondly, the over 9 years education experience requirement of participants might have led to a selection bias as level of education is closely linked to cognitive function. Thirdly, we could not determine whether levels of CRP might constantly correlate with cognitive decline over time.

Therefore, longitudinal observation on the changes in cognitive functions and inflammatory profiles should be explored further. Fourthly, the emotional status and inflammatory indexes of healthy controls were not examined. Finally, we did not assess the influence of antiviral therapy on cognitive function.

5. Conclusions

Our findings indicate a potential cognitive dysfunction in patients with COVID-19. Specifically, sustained attention is correlated with the inflammatory level as indicated by CRP. Further studies should therefore investigate the long-term cognitive function dynamics in patients with COVID-19 and its relationship with inflammatory profiles.

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Declaration of competing interest

All authors declare that they have no conflict of interest.

CRediT authorship contribution statement

Hetong Zhou: Conceptualization, Formal analysis, Writing - original draft, Funding acquisition. **Shaohua Lu:** Formal analysis, Investigation. **Jingkai Chen:** Formal analysis. **Ning Wei:** Investigation. **Dandan Wang:** Investigation. **Hailong Lyu:** Investigation. **Chuan Shi:** Formal analysis, Methodology, Writing - review & editing. **Shaohua Hu:** Conceptualization, Writing - review & editing, Funding acquisition.

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Remissvar SFAM försäkringsmedicinskt beslutsstöd COVID

- En del förbehåll kring bristfälligt kunskapsläge är en nödvändig brasklapp. Det är bra.
- "Några veckors" sjukskrivning i efterförloppet av covid med sjukhusbehov men utan intensivvård kan nog i många fall vara lite väl förhoppningsfullt. Var går gränsen förresten mellan sjukhusvård och IVA - många med svår lungpåverkan vårdas ju numera med högflödessyrgas på vårdavdelning?
- Gränsen mellan "långdraget förlopp av akut covid" och "postcovid" är förmodligen inte så uppenbar för de flesta sjukskrivande, kliniskt verksamma läkarna. Om det syftar enbart på en tidsgräns så är det en artificiell uppdelning och ett cirkelresonemang, och ur sjukskrivningshänseende ges ganska tydliga riktlinjer för förstnämnda men egentligen inget stöd alls för handläggningen av sistnämnda.
- Finns verkligen stöd för påståendet att samsjuklighet eller riskgrupptillhörighet predisponerar för postcovid, som det antyds i postcovid-avsnittet? Allvarlig (ev även långvarig?) akut covid, ja det stämmer kanske, men postcovid? Känns angeläget att riktlinjerna har stöd i fakta, för en sådan här skrivning riskerar kanske annars göra det svårare att sjukskriva någon utan samsjuklighet tillräckligt länge/individanpassat, även när de har en tydlig funktionsnedsättning.

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Hej

Tiden har inte tillåtit en djupare analys, men jag har diskuterat ett remissvar med några av medlemmarna i styrelsen. Vi saknar att Företagshälsovården är omnämnd som en självklar del i utredningen av arbetsförmåga och finns med i rehabiliteringsprocessen för anpassad arbetsåtergång. Vi har fortfarande begränsad kunskap när det gäller prognosen av långtidsCOVID inklusive vilken behandling som bäst främjar tillfrisknande. Många gånger skrivs COVID patienter (men även patienter med andra sjukhuskrävande åkommor) ut från sjukhus och hamnar i ett första led hos patientens patientansvariga läkare på vårdcentralen, som har begränsad information om patientens arbetsförhållanden. När sen vårdcentralen ej kan reda ut detta och patienten varit långtidssjukskriven, så hamnar patienten i Försäkringskassans rehab-kedja kring dag 180 och först då flaggar arbetsgivaren till företagshälsovården hur man ska gå till väga för arbetsåtergång. Det innebär då att patientens arbetsförmåga efter dag 181 ska testas till hela reguljära arbetsmarknaden. Därför vore det önskvärt att företagshälsovården tidigare än vad som oftast är fallet blir inkopplade på patienter i arbetsför ålder som skrivs ut från sjukhus inkl. COVID patienter för en mer ändamålsenlig arbetsrehabilitering.

Vänliga hälsningar

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