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dysbiotic gut, supports the Gut-Brain-Axis and this combination provides diversified benefits suitable to treat autism.

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Does neurocognition functioning impact driving habits in older adults with HIV?

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Background and aims

Nearly 30%–50% of people living with HIV (PLWH) have HIV-Associated Neurocognitive Disorder. With half of PLWH being 50 and older, concerns mount that the prevalence and severity of neurocognitive impairment will increase with age. Yet, neurocognitive functioning can impact driving safety in older adults, but may also impact driving in older PLWH. Impairment in the neurocognitive domains utilized in driving may put PLWH at risk for decreased mobility that impacts their treatment adherence and quality of life. This study is the first to examine the driving habits of PLWH 40+ years and determine whether impairment in particular neurocognitive domains are predictive of driving habits.

Methods

A sample of PLWH ($N = 260$) were administered comprehensive norm-based neurocognitive tests and a measure of self-reported driving habits.

Results

While 166 (63.60%) participants possessed a driver's license, 213 (81.61%) reported currently driving. Participants with a driver's license had higher global neurocognition as well as better neurocognitive functioning in speed of processing and working memory. Participants with poorer neurocognition self-reported driving fewer miles. Those with more driving experience exhibited better neurocognitive functioning in global neurocognition, speed of processing, motor function, verbal fluency, working memory, and executive function. Participants who self-rated their driving as good/excellent demonstrated better neurocognitive abilities in global neurocognition, speed of processing, executive function, motor function, and verbal fluency.

Conclusions

Neurocognitive functioning among older PLWH was associated with self-reported driving habits. Furthermore, neurocognitive functioning's impact on driving can hinder PLWH's access to medical care. Implications for public health, clinical practice, and research are posited.

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Neuroprotective potential of chebulinic acid in $A\beta$ (1–42) induced model of AD; Targeting mitogen activated protein kinase

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Background and aims

Stress activated protein kinases such as p38 MAPK have been implicated in the pathogenesis of AD. The present study was designed to investigate neuroprotective mechanisms and therapeutic effect of chebulinic acid (ChA) in ICV- $A\beta$ induced oxidative/nitrosative stress, neuroinflammation and alteration in neurochemistry resulting in cognitive deficits via p38 MAPK.

Methods

$A\beta$ 1–42 peptides at the dose of (3 nmol/3 μ L) twice on day 0 were infused bilaterally (ICV) after surgery to male wistar rats to induce dementia. ChA (25, 50 and 100 mg/kg/p. o) administered from 7th day onwards up to 21st day following $A\beta$ infusion. The MWM and ORT were applied to measure learning and memory performance in animals. On day 22, following the behavioral tests, all the rats were sacrificed for evaluation of molecular alterations.

Results

Rat with ChA, showed higher performance in MWM and ORT than rats treated $A\beta$ whose memory performance declined compared to sham group. In addition, an elevation in neuroinflammatory cytokine (IL-1 β , IL-6 and TNF- α), p38 MAPK, $A\beta$ levels and decrease in AchE and monoamines neurotransmitters (DA, Nadr, 5-HT, GABA and glutamate) was observed with $A\beta$ injection. ChA reversed $A\beta$ -triggered cognitive and molecular alterations.

Conclusions

Results of the present study have thus demonstrated the role of p38 MAPK in cognitive deficit, cholinergic hypofunction, increase in oxidative-nitrosative stress and neurochemicals and histological alterations following $A\beta$ infusion. To sum up, we can say that the healing effect of ChA on $A\beta$ induced neurodegeneration opens a new door for the development of AD treatment.

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Psychological impact of COVID-19 pandemic on medical students in Sudan, 2020

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Background and aims

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is an emerging infection causing a widely spread pandemic of (COVID-19). The current COVID-2019 pandemic is prompting fear of falling sick, dying, helplessness and stigma so urgent and timely understanding of mental health status is needed to help the community.

Methods

A cross-sectional descriptive research was done among medical student in Sudan during COVID 19 pandemic in August 2020. DASS-21 scales were used to determine the level of depression, anxiety and stress among medical students through an online questionnaire, their responses were taken relatable to 21 items of DASS scale. The data was analyzed by means of SPSS version 25.0.

Results

The mean (SD) age of our study participants was 21.8 (2.4) with female to male ratio of 2.1. Interestingly, more than 40.5% of the study participants were free of depression while more than 13% had extremely severe depression. On the other hand, only 4.4% had

extremely severe stress. However, anxiety ranked the higher numbers with 23% had extremely severe anxiety. Adjusted linear regression model revealed that lower levels in the medical school and open colleges during the lock down period were associated with more anxiety (p value 0.01, 0.006 respectively).

Conclusions

It's important to support high-risk groups especially those with preexisting mental illness to offer advanced psychological interventions. So our study can be used to construct and formulate a psychological intervention and implement mental health strategies directed toward vulnerable groups during the COVID-19 epidemic.

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Brain targeted polymeric nanoparticles of alendronate confers improved pharmacokinetic and neuroprotective effect against Alzheimer's disease like pathological changes in high fat diet fed mice

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Background and aims

Increasing prevalence of Alzheimer's disease (AD) has presented it as one of the major neurodegenerative disorder worsening the quality of life of elderly. AD is one of the complex forms of dementia which is affecting millions of people. AD is a progressive neurodegenerative disorder with short-term memory impairment, successive cognitive disabilities, A β deposition, neurofibrillary tangles, neuronal death. The unclear etiology and lack of therapy reveals an urgent need to investigate the potential therapeutic approaches. Furthermore, alendronate (bisphosphonate) was cited to exhibit neuroprotective role by modulating the components of Mevalonate pathway. Thus, the present study was designed to develop the brain targeted polymeric nanoparticles of alendronate (ALN-NPs) to overcome its side effects and poor pharmacokinetics and to investigate its effect against high fat diet (HFD)-induced AD-like pathological symptoms in mice.

Methods

ALN-NPs were developed using ionic-gelation technique and characterized for particle size, TEM, SEM, in-vitro, ex-vivo release, pharmacokinetic profile. The optimized ALN-NPs were administered intranasally in mice to deliver ALN to brain following investigation against neurobehavioral, neurochemical (β -secretase, A β , neuroinflammation, isoprenoids, GSK-3 β , oxidative stress) and histopathological changes (A β deposition).

Results

The developed ALN-NPs acquired the particle size within 200 nm along with improved pharmacokinetics. Additionally, ALN-NPs were found to alter remarkably the HFD-induced neurobehavioral, neurochemical changes and reduced A β in mice hippocampus. ALN-NPs also reduced the hippocampal isoprenoids level in mice which corresponds to the reduced AD-like symptoms.

Conclusions

Our current outcomes suggest the prominent role of ALN-NPs against AD-like pathologies by targeting Mevalonate pathway, supporting this bone drug a potential target for AD treatment.

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Analysis of cognitive disorders on internet gaming disorder (IGD) patients in rural area of Yogyakarta, Indonesia

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Background and aims

Internet Gaming Disorder (IGD) phenomenon arises due to the inability of controlling internet usage and its related contents. The prevalence of IGD tends to arise (0.3%–10.8%). In 2016 World Health Organization (WHO) informing that IGD was part of gaming disorders in ICD-11. IGD was one condition that may affect cognitive status. This condition may happen due to long hours of internet usage, including playing games. This study aims to analyze the cognitive disorders of junior high school students with IGD in the rural area of Yogyakarta, Indonesia.

Methods

This study was using an observational analytic design with a cross-sectional approach towards junior high school students. The respondents were divided into two groups (students with IGD and without IGD) containing 37 respondents each. Both groups performed cognitive status examinations using MMMSEC-Ina. Analysis of the cognitive status of both groups includes the diagnosis of IGD, the types of games, and the duration of internet usage with Mann Whitney test followed by linear regression test.

Results

From the results, the Mann-Whitney test results on cognitive status showed a trend of decreasing the average cognitive value of each domain, especially the calculation/attention domain $p = 0,000$; and cognitive total $p = 0,029$. Bivariate correlation test results with outside variables were not found to be significant. The multivariate test results showed that IGD was significantly correlated with cognitive status with $B = 1293$; $p = 0,024$.

Conclusions

Patients with IGD in the rural area of Yogyakarta experience cognitive dysfunction, especially in the domain of calculation or attention.

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Prevalence, clinical characteristics of headache in medical students at Alzaem Alazhari University in 2020, Khartoum, Sudan

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Background and aims

Headache is one of the most common disorders of the nervous system. Headache means pain in the head. The (WHO) reports that almost half of the adults worldwide will experience headache in any time at any given year.

The study aims to determine the prevalence rate and clinical characteristics of headache among medical students in Alzaem Alazhari university in Khartoum state, Sudan in 2020.

Methods

A descriptive cross-sectional study using a 41 items questionnaire was introduced to 71 medical students from Alzaem Alazhari university in the period from January 1st to 15th of February.