Hot Articles

“July 2020”

Health Science
Abstract

**OBJECTIVE.** The response to coronavirus disease (COVID-19) is evolving in New York City. We would like to share our experiences, thoughts, and perspectives on coping with the pandemic.

**CONCLUSION.** This article presents experiences that are meant to help foster discussion as the wave of COVID-19 continues. Thoughtful leadership and careful continuous communication will help us minimize anxiety and frustration during this difficult time.

Database

American Roentgen Ray Society
OBJECTIVE. Available information on CT features of the 2019 novel coronavirus disease (COVID-19) is scattered in different publications, and a cohesive literature review has yet to be compiled.

MATERIALS AND METHODS. This article includes a systematic literature search of PubMed, Embase (Elsevier), Google Scholar, and the World Health Organization database.

RESULTS. Known features of COVID-19 on initial CT include bilateral multilobar ground-glass opacification (GGO) with a peripheral or posterior distribution, mainly in the lower lobes and less frequently within the right middle lobe. Atypical initial imaging presentation of consolidative opacities superimposed on GGO may be found in a smaller number of cases, mainly in the elderly population. Septal thickening, bronchiectasis, pleural thickening, and subpleural involvement are some of the less common findings, mainly in the later stages of the disease. Pleural effusion, pericardial effusion, lymphadenopathy, cavitation, CT halo sign, and pneumothorax are uncommon but may be seen with disease progression. Follow-up CT in the intermediate stage of disease shows an increase in the number and size of GGos and progressive transformation of GGO into multifocal consolidative opacities, septal thickening, and development of a crazy paving pattern, with the greatest severity of CT findings visible around day 10 after the symptom onset. Acute respiratory distress syndrome is the most common indication for transferring patients with COVID-19 to the ICU and the major cause of death in this patient population. Imaging patterns corresponding to clinical improvement usually occur after week 2 of the disease and include gradual resolution of consolidative opacities and decrease in the number of lesions and involved lobes.

CONCLUSION. This systematic review of current literature on COVID-19 provides insight into the initial and follow-up CT characteristics of the disease.
Abstract

Objectives: This study was done to synthesize a novel Zn(II)-gallic acid complex with improved antidiabetic and antioxidative properties.

Methods: The complex was synthesized and characterized using Fourier Transform Infrared (FT-IR) and 1H NMR. Cytotoxicity was evaluated using Chang liver cells and L6 myotubes. Radical scavenging and Fe3+-reducing, as well as α-glucosidase, α-amylase and glycation inhibitory properties were measured. Glucose uptake was measured in L6 myotubes, while the complex was docked against glucose transporter type 4 (GLUT-4) and protein kinase B (PKB).

Key findings: Analysis showed that complexation occurred through a Zn(O4) coordination; thus, the complex acquired two moieties of gallic acid, which suggests why complexation increased the DPPH (IC50 = 48.2 µm) and ABTS (IC50 = 12.7 µm) scavenging and α-glucosidase inhibitory (IC50 = 58.5 µm) properties of gallic acid by several folds (5.5, 3.6 and 2.7 folds; IC50 = 8.79, 3.51 and 21.5 µm, respectively). Zn(II) conferred a potent dose-dependent glucose uptake activity (EC50 = 9.17 µm) on gallic acid, without reducing the viability of L6 myotubes and hepatocytes. Docking analysis showed the complex had stronger interaction with insulin signalling proteins (GLUT-4 and PKB) than its precursor.

Conclusions: Data suggest that complexation of Zn(II) with gallic acid resulted in a complex with improved and multi-facet antioxidative and glycaemic control properties.

Database

Wiley Online Library
Abstract

Extracellular adenosine triphosphate (ATP) is a danger signal released by dying and damaged cells, and it functions as an immunostimulatory signal that promotes inflammation. The ectonucleotidases CD39/ectonucleoside triphosphate diphosphohydrolase-1 and CD73/ecto-5′-nucleotidase are cell-surface enzymes that breakdown extracellular ATP into adenosine. This drives a shift from an ATP-driven proinflammatory environment to an anti-inflammatory milieu induced by adenosine. The CD39–CD73–adenosine pathway changes dynamically with the pathophysiological context in which it is embedded. Accumulating evidence suggests that CD39 and CD73 play important roles in liver disease as critical components of the extracellular adenosinergic pathway. Recent studies have shown that the modification of the CD39–CD73–adenosine pathway alters the liver’s response to injury. Moreover, adenosine exerts different effects on the pathophysiology of the liver through different receptors. In this review, we aim to describe the role of the CD39–CD73–adenosine pathway and adenosine receptors in liver disease, highlighting potential therapeutic targets in this pathway, which will facilitate the development of therapeutic strategies for the treatment of liver disease.
Abstract

**Objectives:** With 70% of care home residents experiencing a medication error every day in the UK, better multi-professional working between medical practitioners, pharmacists and care homes was recommended. The aim of this study was to determine the effectiveness (falls reduction) and cost-effectiveness, of a multi-professional medication review (MPMR) service in care homes for older people.

**Method:** A total of care homes in the East of England were cluster randomised to ‘usual care’ or two multi-professional (General practitioner, clinical pharmacist and care homes staff) medication reviews during the 12-month trial period. Target recruitment was 900 residents with 10% assumed loss to follow-up. Co-primary outcome measures were number of falls and potentially inappropriate prescribing assessed by the Screening Tool of Older Persons Prescriptions.

**Key findings:** A total of 826 care home residents were recruited with 324 lost to follow-up for at least one primary outcome measure. The mean number of falls per resident per annum was 3.3 for intervention and 3.0 for control ($P = 0.947$). Each resident was found to be prescribed 0.69 (intervention) and 0.85 (control) potentially inappropriate medicines after 12 months ($P = 0.046$). No significant difference identified in emergency hospital admissions or deaths. Estimated unadjusted incremental mean cost per resident was £374.26 higher in the intervention group.

**Conclusions:** In line with other medication review based interventions in care homes, two MPMRs improved medication appropriateness but failed to demonstrate improvements in clinical outcomes. From a health system perspective costs where estimated to increase overall and therefore a different model of medicines management is required.
Currently, the world is facing the pandemic of a novel strain of beta-coronavirus known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Acute respiratory distress syndrome (ARDS) is the most devastating complication of SARS-CoV-2. It was indicated that cytokine release syndrome (CRS) and dominantly IL-6 play a central role in the pathophysiology of ARDS related to the novel 2019 coronavirus disease (COVID-19). Despite the global emergency of the disease, at this time, there are no proven therapies for the management of the disease. Tocilizumab is a potential recombinant monoclonal antibody against IL-6 and currently is under investigation for the management of ARDS in patients with COVID-19. Given these points, we reviewed the current evidence regarding the potential therapeutic role of tocilizumab and its important clinical issues in the treatment of ARDS related to COVID-19.
Abstract

**Introduction:** There is a tendency of waterpipe smokers to advance their practice toward concurrent use (polytobacco use) of other tobacco products and nicotine delivery systems. This study investigated poly-tobacco use among waterpipe smokers, and its effect on their quit intention.

**Methods:** Descriptive cross-sectional design was utilized to recruit a convenience sample of university students who used waterpipe in three East Mediterranean countries. Using an internet-based survey, data were collected regarding participants’ demographics, use of alternative tobacco products and nicotine delivery systems, and waterpipe quitting profile. Results: A total of 2290 students agreed to participate, among which 1116 (45.3%) reported using at least one tobacco product beside waterpipe. Poly-tobacco use was highest (61.1%) in Egypt, followed by Jordan (45.1%) and Palestine (33.1%). Across countries, cigarettes were the most common product (45.2%, n = 924) followed by cigar (18.6%, n = 374) and e-shisha (17.5%, n = 353). Conversely, the least reported product was smokeless tobacco (7.5%, n = 151) preceded by regular pipe (9.5%, n = 193). Participants who were males (OR = 2.83, 95% CI: 2.18–3.65), older (22–29 years) (OR = 1.15, 95% CI: 1.09–1.22), unemployed (OR = 1.58, 95% CI: 1.22–2.04), and those who initiated waterpipe at a younger age (OR = 0.87, 95% CI: 0.87–0.91) had higher odds of being poly-smokers. Poly-tobacco users were significantly more resistant to quit waterpipe. Conclusion: This study demonstrates poly-tobacco use as a rising phenomenon among waterpipe smokers and highlights the necessity for initiating advanced interventions to help waterpipe poly-tobacco users quit this dangerous type of addiction. Various country-specific programs are needed considering the various products used by the users.
Searching for glycomic biomarkers for predicting resilience and vulnerability in a rat model of posttraumatic stress disorder

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Stress

Accepted author version posted online: 15 Jul 2020  Pages: 1-30

This is the author accepted version which has not been proofed or edited

10.1080/10253890.2020.1795121

Abstract

Posttraumatic stress disorder (PTSD) is triggered by traumatic events in 10-20% of exposed subjects. N-linked glycosylation, by modifying protein functions, may provide an important environmental link predicting vulnerability.

Our goals were (1) to find alterations in plasma N-glycome predicting stress-vulnerability; (2) to investigate how trauma affects N-glycome in the plasma (PGP) and in three PTSD-related brain regions (prefrontal cortex, hippocampus and amygdala; BGP), hence uncover specific targets for PTSD treatment. We examined male (1) controls, (2) traumatized vulnerable and (3) traumatized resilient rats both before and several weeks after electric footshock. Vulnerable and resilient groups were separated by z-score analysis of behavior.

Higher freezing behavior and decreased social interest were detected in vulnerable groups compared to control and resilient rats. Innate anxiety did not predict vulnerability, but pretrauma levels of PGP10(FA1G1Ga1), PGP11(FA2G2) and PGP15(FA3G2) correlated positively with it, the last one being the most sensitive. Traumatic stress induced a shift from large, elaborate N-glycans towards simpler neutral structures in the plasma of all traumatized animals and specifically in the prefrontal cortex of vulnerable rats. In plasma trauma increased PGP17(A2G2S) level in vulnerable animals. In all three brain regions BGP11(F(6)A2B) was more abundant in vulnerable rats, while most behavioral correlations occurred in the prefrontal cortex.

In conclusion, we found N-glycans (especially PGP15(FA3G2)) in plasma as possible biomarkers of vulnerability to trauma that warrants further investigation. Posttrauma PGP17(A2G2S1) increase showed overlap with human results highlighting the utility and relevance of this animal model. Prefrontal cortex is a key site of trauma-induced glycosylation changes that could modulate the behavioral outcome.

Database

Taylor & Francis Online
Impact of interpersonal client–provider relationship on satisfaction with mental healthcare among the LGBTQ+ population

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Journal of Mental Health

Published online: 15 Jul 2020 (Pages: 1-8)

10.1080/09638237.2020.1793126

Abstract

Background: Gender and sexual minorities are more likely to report unfavourable experiences with primary care. Aside from being refused care, additional challenges include stigma, discrimination, social and societal rejection, and violence.

Aims: The purpose of this study was to determine which aspects of the client–provider relationship affected perceived satisfaction with the quality of mental healthcare received.

Methods: Data was collected via electronic survey, which yielded 177 responses. Univariate and ordinal logistic regression were used to determine if a significant relationship existed between the variables of interest.

Results: Results indicate that clients who felt less trust for their providers, reported inadequate time spent in therapeutic encounters, and felt their providers looked down on or judged them were less satisfied with the quality of mental healthcare they received. In addition, LGBTQ+ clients who were less satisfied with the quality of care they received were significantly less confident in their ability to receive adequate future mental healthcare.

Conclusions: Results of this study highlight the importance of provider awareness, attitude, and access to information regarding the mental health needs of the LGBTQ+ population because these support culturally competent care, which potentially encourages future care-seeking behaviors.

Database

Taylor & Francis Online
Abstract

**Aim:** The increasing prevalence of chronic conditions and impairments in the population is putting new demands on health and rehabilitation services. Research on self-help groups suggest that participation in these groups might have a positive impact on people who are struggling with chronic illnesses or disabilities. In this study, we explore person-centred support in which participants in self-help groups are undergoing rehabilitation to develop their knowledge, skills and confidence necessary to handle life’s challenges.

**Method:** The design is exploratory, analysing data from informant interviews and focus groups (a total of 32 participants) using a Grounded Theory inspired approach to analyse. The participants were rehabilitation clients aged between 20 and 60 years; eight were men and twenty-six were women.

**Results:** Three main categories emerged as being important self-help processes that were likely to promote positive rehabilitation outcomes: (1) Learning and practicing safely, (2) A refuge from expectations, (3) Internal processes that accentuate the positives.

**Conclusion:** Peer support delivered through the structured self-help environment can facilitate the development of new self-awareness, promote acceptance and adjustment, facilitate the establishment of new skills and enable transfer of learning to new environments, including the workplace.