News and Views

Risk Factors for New-onset Postpartum Hypertension

Almost one-quarter of women in a retrospective study developed *de novo* postpartum hypertension after 6 weeks and within a year of childbirth in a new research published in the journal *Hypertension*.[1]

In this single-center study, researchers analyzed medical records of 2,465 women with a pregnancy length of at least 20 weeks who had delivered at the Boston Medical Center from 2016 to 2018. These women were not hypertensive and also did not have gestational hypertension. Fifty-four percent were non-Hispanic Black, while 18% were Hispanic or Latino. They aimed to determine the risk of new-onset postpartum hypertension in this study group defined as blood pressure (BP) ≥140/90 mmHg on two separate readings. A BP reading of ≥160/110 mmHg was considered as severe high BP. BP readings in the first year after delivery were noted from the medical records.

Twelve percent of women (n = 298) without hypertension were found to have developed *de novo* postpartum hypertension within 1 year of childbirth; of these, 17% (n = 51) had severe hypertension. Although the majority could be diagnosed soon after childbirth, 22% women were diagnosed as hypertensive ≥6 weeks after delivery. Age ≥35 years, cesarean births or cigarette smoking (current or former) were identified as the risk factors for hypertension. The risk of new-onset postpartum high BP was 29% higher among women who had all these three risk factors. The risk increased to 36% if the women were also non-Hispanic Black.

Since 22% cases were diagnosed after 6 weeks of delivery, this study draws attention to the need to monitor women even beyond the required routine postpartum follow-up. Not doing so could miss many cases of new-onset hypertension, which may remain undiagnosed and cause significant maternal morbidity and mortality.

Reference

1. Parker SE, et al. De novo postpartum hypertension: incidence and risk factors at a safety-net hospital. Hypertension. 2022 Nov 15;101161HYPERTENSIONAHA12219275.

COVID-19 and Risk of Epilepsy

Coronavirus disease 2019 (COVID-19) patients are at greater risk of developing seizures or epilepsy within 6 months of the infection compared to those who had influenza, suggests a new study published online November 16 in the journal *Neurology*.[1]

In this study, researchers from the UK and the US examined electronic health records of 81 million people with COVID-19 to explore the association between COVID-19 and epilepsy in the 6 months post-infection. A total of 1,52,754 COVID-19 patients were matched as per age, sex and medical conditions with 1,52,754 patients with influenza within the same time frame.

Results showed that risk of developing epilepsy or seizures was increased by 55% within the 6 months after the infection compared to influenza patients with hazard ratio of 1.55. The incidence rate of new-onset epilepsy or seizures was 0.94% in those who had COVID-19 versus 0.60% in those who had influenza. COVID-19 patients younger than 16 years of age and who were managed as outpatients were at greater risk.

The overall risk of developing seizures or epilepsy was <1% in this study. However, this could translate into much bigger numbers given the huge number of COVID infections. It further highlights the risk even in patients with mild infections. And the fact that the risk was increased in younger patients, as shown in this study, underscores the need to prevent COVID-19 in this age group. The authors caution the need to especially monitor cases of mild infections "who may have more subtle features of seizures, such as focal aware seizure" in the post-infection period.

Reference

1. Taquet M, et al. Incidence of epilepsy and seizures over the first 6 months after a COVID-19 diagnosis: a retrospective cohort study. Neurology. 2022 Nov 16:10.1212/WNL.0000000000201595.

Outdoor Artificial Light at Night: A Potential Risk Factor for Diabetes?

Does long-term exposure to outdoor artificial light at night (LAN) have an impact on glucose homeostasis and the prevalence of diabetes? To decode this question, researchers from China enrolled 98,658 participants from the China Noncommunicable Disease Surveillance Study from 162 sites across mainland China in 2010. Their mean age was 42.7 years. Women comprised almost half (49.2%) of the study population.

Exposure to outdoor LAN for a minimum duration of 6 months was determined with the help of satellite data. Exposure levels were categorized into five quintiles. People residing in areas of higher quintiles of outdoor light were older, had higher body mass index (BMI) and household income and lived in an urban area.

Analysis of data revealed a positive association between chronic exposure to outdoor LAN and glucose levels both fasting and postprandial, glycosylated hemoglobin (HbA1c) and insulin resistance measured via HOMA-IR (homeostatic model assessment for insulin resistance) even after adjusting for many important diabetes risk factors. However, artificial light had a negative correlation with beta-cell function as quantified by HOMA-B. Diabetes prevalence was significantly associated with per-quintile LAN exposure (PR 1.07). With every quintile exposure to artificial LAN, the risk in prevalence of diabetes increased by 7% with a prevalence ratio of 1.07. Diabetes prevalence was increased by 28% among participants exposed to the highest level of exposure to nighttime light (median 69.1 nW cm^{-2} sr^{-1}) compared to those exposed the least (median 1.0 nW cm^{-2} sr^{-1}) with an adjusted prevalence ratio of 1.28.

Rapid urbanization and industrialization has increased artificial LAN. Excessive use of night outdoor artificial light causes what has been called light pollution. While the glittering lights are mesmerizing, they negatively affect health as demonstrated in this study. It shows that frequent exposure to the bright outdoor lights at night is associated with greater risk of hyperglycemia, insulin resistance and diabetes and suggests artificial LAN as a potential novel risk factor for diabetes. Disruption in the circadian rhythm has been hypothesized as the underlying mechanism. However, the study has shown only an association between the two and does not prove a causal relationship.

Reference

1. Zheng R, et al. Outdoor light at night in relation to glucose homoeostasis and diabetes in Chinese adults: a national and cross-sectional study of 98,658 participants from 162 study sites. Diabetologia. 2022 Nov 14.

More Than 1 Billion Young People at Risk of Hearing Loss from Unsafe Listening

More than 1 billion young people are at risk of hearing impairment or hearing loss because of exposure to loud noise from personal listening devices and at loud music venues, according to a recent study published in the *BMJ Global Health*.[1]

In this systematic review and meta-analysis, researchers aimed to find out the prevalence of unsafe listening practices from exposure to personal listening devices (PLDs) such as ear buds, headphones and loud entertainment venues in the age group ranging between 12 and 34 years. They also sought to determine the number of people at risk of hearing loss consequent to this practice. Thirty-three studies (corresponding to data from 35 records) conducted between 2000 and 2021 involving 19,046 participants were selected; 17 studies related to use of PLDs, while the remaining 18 focused on loud entertainment venues.

Upon unsafe exposure to PLDs, the pooled prevalence was estimated to be 23.81%. For loud entertainment venues, the prevalence was estimated to be 48.20%. The meta-analysis further estimated that up to 1.35 billion (range 0.67-1.35 billion) young persons could be at risk of loss of hearing from exposure to unsafe listening practices. Unsafe listening is quite prevalent in society, as also indicated in this study. It is recognized as a modifiable risk factor for hearing loss in teenagers and young adults. The findings of this study urge policymakers to formulate and implement policies regarding unsafe exposure to sound for safe listening to prevent hearing loss.

Reference

1. Dillard LK, et al. Prevalence and global estimates of unsafe listening practices in adolescents and young adults: a systematic review and meta-analysis. BMJ Glob Health. 2022;7(11):e010501.

First FDA Approved Treatment to Delay-onset of Symptomatic Type 1 Diabetes: Will it be a Game Changer?

Teplizumab-mzwv, an injectable monoclonal antibody has been FDA approved as a treatment to delay the onset of stage 3 type 1 diabetes in adults and children (aged ≥8 years) with stage 2 type 1 diabetes. Teplizumab-mzwv is an anti-CD3-directed antibody.[1,2]

In stage 1 type 1 diabetes, two or more type 1 diabetes-associated islet autoantibodies are positive; however, the patient is asymptomatic and normoglycemic. In stage 2, dysglycemia develops and patients are mostly asymptomatic. Stages 1 and 2 are presymptomatic type 1 diabetes. Stage 3 is when type 1 diabetes can be clinically diagnosed. It is symptomatic type 1 diabetes and manifests with the classical symptoms of diabetes (polyuria, polydipsia, fatigue, unexplained weight loss, blurred vision) or may present with diabetic ketoacidosis.[3]

Dosage form: 2 mg per 2 mL (1 mg/mL) single-dose vial.

Dose and administration: Teplizumab-mzwv is administered as IV infusion once daily × 14 days over a minimum duration of 30 minutes. Use a nonsteroidal anti-inflammatory drug (NSAID)/paracetamol, antihistamine and/or antiemetic as premedication for the first 5 days (minimum) of administration. Dose is calculated based on the body surface area.

- Day 1: 65 μg/m^2
- Day 2: 125 μg/m^2
- Day 3: 250 μg/m^2
- Day 4: 500 μg/m^2
- Days 5 through 14: 1,030 μg/m^2

Side effects: Skin rash, headache, lymphopenia.

Warning and precautions

- Two doses should not be given on the same day. Obtain baseline complete blood count (CBC) and liver enzymes before starting treatment.
- A minimum of two positive pancreatic islet autoantibodies must be obtained to confirm stage 2 type 1 diabetes prior to starting treatment. Type 2 diabetes must be excluded.
- Monitor the patient for cytokine release syndrome: check liver enzymes; discontinue treatment if ALT or AST are increased more than 5 times the upper limit of normal.
- Assess for serious infections during and after treatment. Stop treatment if a serious infection develops. Avoid in patients with active serious infection or chronic active infection except for localized skin infections.
- Monitor white blood cell count during treatment; discontinue the drug in case of lymphopenia (<500 cells/μL) lasting 1 week or longer. Hypersensitivity reactions may occur.
- Administer all age-appropriate vaccinations before starting treatment; avoid simultaneous administration of live, inactivated and mRNA vaccines. Live vaccines should be administered ≥8 weeks before treatment and inactivated/mRNA vaccines ≥2 weeks prior to treatment.

References

1. US FDA news release. FDA approves first drug that can delay onset of type 1 diabetes. Available from: https://www.fda.gov/news-events/press-announcements/fda-approves-first-drug-can-delay-onset-type-1-diabetes
2. Tzield prescribing information. Available from: https://www.accessdata.fda.gov/drugsatfda_docs/label/2022/761183s000lbl.pdf
3. Insel RA, et al. Staging presymptomatic type 1 diabetes: a scientific statement of JDRF, the Endocrine Society, and the American Diabetes Association. Diabetes Care. 2015;38(10):1964-74.

Stressful Life Events and Long COVID

More than half of COVID-19 patients report major stressful events in the post-COVID period. Those who suffer such events within 1 year of surviving COVID-19 are more likely to develop long COVID symptoms, suggests a new research published in the *Journal of the Neurological Sciences*.[1]

In this prospective study of hospitalized COVID-19 patients, Frontera et al evaluated long-term outcomes and other post-acute COVID symptoms at 6 and 12 months after COVID. A total of 451 COVID survivors were evaluated; 383 finished a 6-month follow-up, while 242 completed a 12-month follow-up.

Within a year after hospital discharge, 77 (17%) of the patients examined died and 51% reported major life stressor events such as financial insecurity, food insecurity, death of a close contact and new disability. On multivariate analysis, the presence of these life stressors was strongly predictive of adverse outcomes 1 year after post-COVID hospitalization in terms of disability, difficulty in activities of daily living (ADL), depression, fatigue, sleep problems and post-acute symptoms of COVID-19. The adjusted odds ratios for these associations ranged between 2.5 and 20.8.

Older patients, female patients and those who had disability at the starting point of the study were more likely to have poor outcomes post-hospitalization. Greater severity of the COVID-19 infection was associated with prolonged post-acute symptoms and difficulties in ADL. Older patients were more likely to experience disability, problems with ADL and cognition and depression. Women patients reported more anxiety along with difficulties in ADL.

This study spotlights the contribution of stressful life events on the outcomes after hospitalization for COVID-19 while reiterating the role of established risk factors such as advanced age, severity of infection in post-COVID acute symptoms and long COVID symptoms. A holistic approach is required when managing such patients and the psychosocial factors also need to be addressed for optimum patient recovery.

Reference

1. Frontera JA, et al. Life stressors significantly impact long-term outcomes and post-acute symptoms 12-months after COVID-19 hospitalization. J Neurol Sci. 2022;443:120487.

The First Fungal Priority Pathogens List

The World Health Organization (WHO) has published the first list of fungal priority pathogens, which pose a danger to public health. The list includes 19 fungi that cause invasive systemic fungal infections, both acute and subacute. These have been categorized into three based on their public health impact and/or emerging antifungal resistance risk into critical, high and medium priority.

- The *critical priority* fungi are *Candida auris, Candida albicans, Cryptococcus neoformans* and *Aspergillus fumigatus*.
- The *high priority* group includes *Histoplasma* spp., *Fusarium* spp., *Nakaseomyces glabrata* (*Candida glabrata*), Mucorales, *Candida tropicalis, Candida parapsilosis* and Eumycetoma causative agents.
- The fungi in the *medium priority* list are *Lomentospora prolificans, Scedosporium* spp., *Pichia kudriavzeveii (Candida krusei), Cryptococcus gattii, Coccidioides* spp., *Talaromyces marneffei* and *Paracoccidioides* spp. and *Pneumocystis jirovecii*.

The report highlights the need for improving surveillance, support for R&D and public health interventions to prevent or reduce antifungal drug resistance.

Earlier in 2017, the WHO had released the first bacterial priority pathogens list keeping in view the rising antibiotic resistance. (*Source: WHO fungal priority pathogens list to guide research, development and public health action. Geneva: World Health Organization; 2022. Available at: https://www.who.int/publications/i/item/9789240060241*)

Poorer Outcomes in Children with Bronchopulmonary Dysplasia Attending Daycare

Preterm children with chronic respiratory disease such as bronchopulmonary dysplasia (BPD) are likely to experience greater respiratory morbidity if they attended daycare when compared with children not in daycare, according to findings of a multicenter study recently published in *Journal of Pediatrics*.[1]

This multicenter study from the United States enrolled 341 children from 9 specialty clinics across the country to examine if daycare visits had any impact on disease severity with greater utilization of health care services for respiratory illnesses in children aged ≤3 years. These patients had been preterm infants born before 34 weeks of gestation with BPD (71% severe) for which they needed follow-up as outpatients between 0 and 3 years of age. Data on daycare attendance, clinical features, emergency room (ER) visits and chronic respiratory symptoms was collected.

The researchers found that children with BPD who attended daycare were nearly 3 times more likely to visit the ED for acute care with an adjusted odds ratio (aOR) of 2.81. They were also four times more likely to use systemic steroids with aOR of 4.23. Compared to children aged ≤3 years not in daycare, those attending daycare had higher probability of experiencing breathing problems (aOR 4.03) and activity limitations (aOR 2.66). They also needed rescue medications (aOR 7.38).

When the study subjects were analyzed according to age, children aged 6 to 12 months (vs. 12 months, 12-24 months) attending daycare were found to have the most severe presentation of the disease with greater chances of hospital admissions.

This study demonstrates that preterm children diagnosed with BPD had greater likelihood of using systemic steroids, ER visits and having long-term respiratory symptoms if they attended daycare. Based on these findings, the researchers suggest daycare as a potentially modifiable risk factor to reduce the adverse outcomes in children with BPD up to 3 years of age. Hence, parents seeking daycare for their children, particularly the preschoolers, should be advised of the risks likely to be associated with daycare attendance.

Reference

1. McGrath-Morrow SA, et al. Daycare attendance is linked to increased risk of respiratory morbidities in children born preterm with bronchopulmonary dysplasia. J Pediatr. 2022;249:22-28.e1.

Study Finds Aerosol Pollution may Rise by 5% Causing Serious Health Issues

A study from Bose Institute, Kolkata, revealed that aerosol pollution is predicted to increase by 5% in Jharkhand, which is classified as a "very sensitive" (red zone), region. To cut emissions, the experts recommended increasing the reliance on thermal power facilities. Particulate matter (PM2.5 and PM10), sea salt, dust, black and organic carbon are among the substances that are found in high concentrations in aerosols and cause severe health hazards if inhaled. The study stated that PM2.5 can be indirectly measured by using aerosol optical depth (AOD), which is a quantitative indication of the amount of aerosol present in the atmosphere.

The study mentioned that if AOD has a value between 0 and 1. 0, then it denotes the clearest sky with the maximum visibility. The value 1 indicates extremely hazy conditions. AOD values between 0.3 and 0.4 are considered to be in the blue zone (less vulnerable),

0.4 and 0.5 are considered to be in the orange zone (vulnerable), and over 0.5 is considered to be in the red zone (highly vulnerable). With more than 0.5 AOD, Jharkhand is considered a red zone and if the level increases by 5%, the AOD may surpass 0.6 the next year.

The increase in AOD level may seem slight, but Jharkhand is already in high danger, making the state much more vulnerable in the future. The primary sources of aerosol pollution were thermal power plants (TPP), followed by solid fuel combustion and vehicle emissions. To reach the 0.4 level, Jharkhand must reduce TPP emissions by 70% to 80%.

The Jharkhand State Pollution Control Board's chairman, Sashikar Samantha, stated that they were striving towards zero emissions. (*Source: https://timesofindia.indiatimes.com/city/ranchi/aerosol-pollution-may-rise-by-5-likely-to-impact-health-finds-study/articleshowprint/95368290.cms?val=3728*)

Pause in Immunization During the Pandemic has Resulted in New Polio Cases in Several Countries

According to an expert associated with the Bill & Melinda Gates Foundation, a pause in immunization due to the COVID-19 pandemic has led to the finding of fresh polio cases in countries like the US, the UK and Mozambique. Dr Ananda Sankar Bandyopadhyay, Deputy Director of Technology, Research and Analytics at the Foundation's Polio Team, stated that these findings on the poliovirus are a reminder that the virus will remain a threat if it exists anywhere in the world.

Dr Bandyopadhyay noted that any case of polio can be attributed to low immunization rates. He added that when the COVID-19 pandemic first hit in 2020, polio campaigns were briefly paused for 4 months to protect communities and health workers from the coronavirus. However, this move has led to an increased spread of the poliovirus in several countries.

In July 2022, poliovirus was found in an unvaccinated adult man in Rockland County, New York, as well as in several wastewater samples near his residence there. Further, poliovirus was also detected in sewage in North and East London between February and May 2022.

In May, the virus was found in Mozambique when a child contracted the disease. It was the second imported case of wild poliovirus in southern Africa after one in Malawi was detected in mid-February this year. (*Source: https://www.newindianexpress.com/world/2022/oct/27/new-polio-cases-found-in-nations-due-to-pause-in-immunisation-during-covid-time-expert-2512205.html*)

Micronutrients Manage Mental Health Better

According to the WHO's World Mental Health Report, released in June 2022, among the 1 billion people who suffered from some mental disorder, 15% were working-age individuals. The prevalence of anxiety and depression soared by a startling 25% worldwide in the first year of the pandemic.

Recent research suggests that nutrient-based medications could help in the treatment of mental illnesses in both individuals and populations. Numerous nutrients have been linked in studies to improved brain function. Five micronutrients—Vitamin B12, C, D, Zn and omega-3 fatty acids—were recommended by experts as aiding in better mental health management.

B vitamins are well known for their ability to affect mood. Depression may be associated with low levels of vitamin B12 and other B vitamins including folate and vitamin B6. A B12 shortage can result in fatigue and memory loss. B vitamin supplementation may enhance mental health and positively impact cognitive performance.

Lack of vitamin C can cause dopamine and serotonin levels in the brain to drop, which can alleviate or even cure the symptoms of anxiety, depression and bipolar disorder.

Vitamin D is found to regulate the functions of the central nervous system. Hence, a deficiency in vitamin D has been linked with depression. It has been observed that vitamin D supplements lessen depressive symptoms in those who are depressed. In addition to improving immune function, zinc affects the brain and emotions. Numerous mental and emotional disorders have been linked to it. A lack of zinc can lead to emotional instability and difficulty handling stress.

Omega-3 is essential to prevent brain aging and preserve cognitive function and also the development of children's brains. Studies show that omega-3 fatty acids can manage several mood disorders including bipolar disorder, severe depression and postpartum depression and also help aid in controlling major depression and schizophrenia. (*Source: https://www.hindustantimes.com/lifestyle/health/role-of-micronutrients-in-boosting-mental-health-101667815533452.html*)

■■■■