

Crossroads

THE OFFICIAL NEWSLETTER OF THE PREMED SCENE

The Hope Corner:

"Increasing Life Expectancy for Individuals with Cystic Fibrosis"



A Word from the Newsletter Director

Dear medical newsletter readers,

As we begin to enter the middle of 2022, our spring cycle has begun to wrap up. But NOT before our content writers gathered up the latest headline research articles published in May and prepared some highlights just for you!

To start you off, this month's Hope Corner article by Ilana Saidov is on individuals with Cystic Fibrosis. While this diagnosis used to be a death sentence in the 18th century, medical researchers today have found ways to increase the life expectancy of CF patients. Read on!

Female health. It's all over the news. So is the hormone estriol in the research world – and a research group at Yale studied just that. Check out Oriana Tolentino's article about this new study. Next, Ashlyn Southerland's discovery takes us to the topic of health equity in our cities' transportation systems. While demographics have been seen to have little impact on the outcome of a health emergency in a public transportation location, this research article seems to touch on something very crucial. It is worth a look!

Our third monthly newsletter article, by Ilana, the writer of this month's Hope Corner, is from a publication in The Israel Medical Association Journal on the link between hypertension and cancer. Take a look! Last but not least, Aprile Bertomo uncovered a new research article that just might brighten your day! I don't want to spoil it, so all I'm going to say is – knock knock..

Please enjoy our May 2022 monthly medical newsletter!

Have a great summer!
Yours truly,

Ryzen Belle Harran
Ryzen Belle Harran



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The Hope Corner: Increasing Life Expectancy for Individuals with Cystic Fibrosis

by Ilana Saidov



For over the past eighty years, there has been improvement in medication development, plan-of-care, and diagnosis for patients with Cystic Fibrosis. Individuals with CF face a common challenge - longevity. These patients experience various respiratory complications due to aging, a factor that is imperative to their overall care plan. Thus, it is vital to improve survival expectations through the various therapeutic strategies that are currently being developed. With these advancements, the CF field hopes to increase the survival rate and life expectancy of CF individuals.

Respiratory failure has been a common cause of death for CF patients, with intubation and mechanical ventilation failing to improve lung function. However, it has been discovered that noninvasive ventilation increases lung function stability. With stabilized lungs, CF individuals have a higher chance of receiving a lung transplant. Additionally, organ transplantation has been shown to increase the survival rate for these patients. These advances have led to a steady upward trend for median survival age for individuals with CF.

Newborn screening is used to improve the survival outcome for infants diagnosed with CF at birth. This type of screening, performed through blood spot analysis for elevated levels of IRT, allows for early intervention in the form of nutritional support for babies diagnosed with CF. The opportunity for early treatment has been vital for newborn survival, as it allows for them to receive the nutrients they need from the very beginning.

Increasing life expectancy for individuals diagnosed with CF is imperative. Presently, there has been great progress in this area through aggressive treatments and specific medications. As a whole, measures to improve management of complications in respiratory failure, lung transplantation, and overall care plan will continue to drive the goal of increasing longevity for CF individuals.

Source:

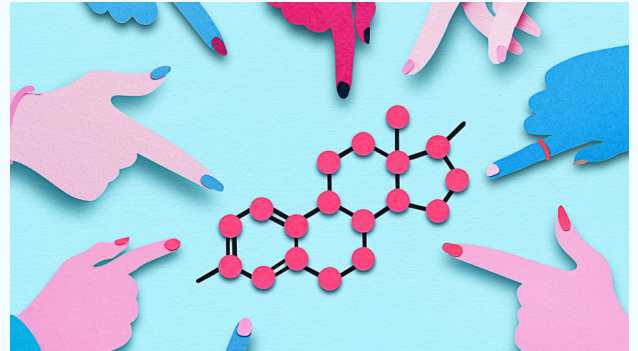
McBennett, Kimberly A., Pamela B. Davis, and Michael W. Konstan. "Increasing life expectancy in cystic fibrosis: Advances and challenges." *Pediatric pulmonology* 57 (2022): S5-S12.

Revealing the Hidden Role and Mechanism of Estriol

by Oriana Tolentino



Different types of estrogens are essential to develop the female reproductive system and specific characteristics. Compared to Estrone and Estradiol, Estriol was considered as the weakest kind because it was only utilized to evaluate the health and well-being of the fetus. Estriol was said to be not necessary in maintaining the various processes involved in one's pregnancy.



This notion is proven to be incorrect by a group of Yale researchers who published a study discussing the significance of Estriol in the fetal reproductive system and brain functions. Through using pregnant mice, they discovered that there were improvements in factors like pregnancy rate and success as well as the size of the litter. There was also a decrease in the anxiety levels of the mice. Aside from that, Estriol was observed to have stimulated epigenetic programming change wherein the binding of estrogen to estrogen receptors changed their shapes to accommodate their attachment to epigenetic modifiers. This mechanism promotes the binding to target genes.



This study opens up new avenues of exploring the importance of Estriol in human pregnancies. This is a step towards creating strategies that would make the journey of pregnancy to be safer in terms of reducing potential complications.



Active Transportation Interventions as an Indicator for Health Equity

by Ashlyn Southerland

In life, we use many forms of transportation to get to our desired destinations. You may walk around a city block, hop on a subway or train, or cycle on a bike. But did you know that the transportation methods, programs, and initiatives that are accessible to you and your community could be impacting your health more than you think?

Hansmann et al. sought for significant correlates between changes in active transportation interventions and reductions in existing socioeconomic and racial health disparities. Because health disparities are well known for their negative impacts on both individual health and population health, the researchers affirmed their methodology reflected on groups differentiated by socioeconomic status, ethnicity, and/or race as an adequate assessment of health outcomes.

Utilizing a longitudinal design, ten population-based studies representative of changes in the policies, infrastructure, and campaigns of active transportation were examined. However,

the results of the literature review appeared to be mixed. Although eight of the ten research studies showed that there was a statistically significant positive change in health outcomes overall from new active transportation interventions and initiatives, the indicators tell another story. When assessing the indicators specifically (socioeconomic status, race, ethnicity), nine of the ten studies failed to yield statistically significant changes in health outcomes within their populations.

What does this all tell us? Based on the small number of literature revolving around this topic, it is clear that research pertaining to active transportation and population health is not commonly studied. By increasing awareness of this topic, further research and interventions could be examined for a better understanding of health disparities, outcomes, and equity efforts.



The Striking Relationship between Hypertension and Cancer

by Ilana Saidov



Numerous advances in medicine have led to an increased survival rate for cancer patients worldwide. It is imperative to understand that although anti-cancer treatments have an immensely positive effect on the lives of these individuals, they can also lead to additional diseases. Cancer-related therapies, as well as a patient's genetics and age, are associated with hypertension, a common comorbidity in the general population. Thus, it is important to diagnose and treat hypertension specifically in cancer patients to lessen the mortality risk present after cancer treatment.

The development of hypertension and cancer are caused by similar risk factors such as obesity, type II diabetes, smoking, and a sedentary lifestyle. Due to these similarities, it is not surprising that the cancer patients are presenting with hypertension as well. In addition, it has been found that hypertension is prevalent in a drastic 37% of cancer patients which makes it the most common type of comorbidity. Hypertension development can cause a variety of risks for cancer patients undergoing common types of cancer treatments such as chemotherapy. Specifically, hypertension has been linked with increased chemotherapy-induced cardiotoxicity, a heart injury that can lead to the discontinuation of chemotherapy treatment for the patient. The leading cause of hypertension in anti-cancer therapy is credited to the vascular endothelial growth factor (VEGF) inhibitor with tyrosine kinase inhibitor (TKI) activity. Up to 50% of patients receiving anti-VEGF therapy have been reported to have hypertension.

To combat the causes of hypertension, physicians recommend decreasing sodium intake as well as anti-hypertensive medications for cancer patients. Since hypertension is an extremely common comorbidity, it should be monitored closely in cancer patients. Additionally, as anti-cancer treatments become more advanced, so does their influence on hypertension development. Thus, it is imperative for cancer patients and their physicians to choose a treatment option that will decrease the likelihood of developing cardiovascular issues.

Source:

Angel-Korman, Avital, Vladimir Rapoport, and Adi Leiba. "The Relationship between Hypertension and Cancer." *The Israel Medical Association Journal: IMAJ* 24.3 (2022): 165-169.

Metastatic Cancer, Comedy, and Mental Health

By Aprile Bertomo

Technology has evolved to new heights over the last decade. With evolution of technology has come greater treatment of mental health issues. A study published this month has found that utilization of the app known as Neolth has been found to assist women living with metastatic cancer through addressing mental health specifically. In combination with using Neolth, participants also watched a video produced by The ComedyCures Foundation, a nonprofit aimed at utilizing humor to heal individuals facing cancer.

The ultimate purpose of the research study was to examine overall feasibility of a type of electronic intervention system for assisting women living with cancer, to assess how efficient a certain program can be for treating mental health, and to examine the helpfulness of a digital application system incorporating comedy and other guided insight. All participants were women with advanced cancer between the ages of 31 and 74 years old. Participants were instructed to utilize the Neolth app and watch the ComedyCures video for

approximately 8 weeks. At baseline, individuals had the choice of three of six varying virtual live sessions with comedians volunteering with the nonprofit. Mental health was assessed based on analysis of depression, perceived stress, anxiety, and self-efficacy. In order to conduct measures of such, the Hospital and Depression Scale, Perceived Stress Scale, and a new General Self-Efficacy Scale were used for proper assessment.

Individuals utilized Neolth for approximately 116 minutes per week. Following utilizing the application and watching the comedy videos, perceived stress was found to decrease by approximately 15.1%, depression by 18.1%, and anxiety by 9.7%. Self-efficacy increased by about 7.6% following partaking in the study. With regard to implications, researchers found that mood and confidence were improved following the study. They also discovered that improvements were greater relative to the industry standard for addressing mental health. Qualitative feedback was also noted to be of importance, as participants explained that self-care reminders provided by Neolth, in addition to engagement notifications provided by the app, encouraged them to put their mental health first while facing cancer.

Ultimately, the results of the study displayed that therapeutic comedy and relaxation through a mobile app can be a practical means of limiting stress in a relatively shorter duration of time as a result of it being affordable, able to be accessed remotely, and limited constraints in time. Such may be helpful for more widespread implementation in the near future.

Works Cited:

https://www.comedycures.org/_files/ugd/b974d0_dfb5120040c2436f99b3034afe6d25ec.pdf



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