

MEETING ABSTRACTS

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Abstracts from the 11th International Conference for Healthcare and Medical Students (ICHAMS)

Virtual. 10-12 February 2022

Published: 27 October 2022



Plenary Session

A1:

Sleep, Suicide, and Major Depressive Disorder: A CAN-BIND1 Study

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BMC Proceedings 2022, 16(Suppl 6):A1:

Introduction

In community samples, 30% of adults suffer from insomnia, with up to one-third experiencing co-occurring suicidal ideation. Furthermore, among people with major depressive disorder (MDD), 75% report insomnia, indicating a correlation between depression, sleep disturbances, and suicide risk. Previous studies have shown that addressing insomnia in patients with MDD decreases suicidal ideation. However, the relationship between insomnia and suicidal ideation has not yet been examined as a predictive measure of treatment response. We hypothesized that suicidal risk, suicidal ideation, and insomnia directly correlate with MDD severity, and are negative predictors of treatment response/remission.

Methods

Patients with MDD (n=211) recruited from 6 outpatient centres in Canada were treated with escitalopram for 8 weeks and evaluated at 8 and 16 weeks for clinical and functional response/remission (Montgomery-Asberg Depression Rating Scale [MADRS]). Responders continued escitalopram, while non-responders received adjunctive aripiprazole for a further 8 weeks. Insomnia and suicidal ideation were evaluated at weeks 0, 8, and 16, while suicidal risk was evaluated at baseline. Linear regression modelling and chi-square tests were used to evaluate the relationship between variables, while controlling for age and gender.

Results

Individuals with both moderate-to-severe suicidal ideation and insomnia scores had significantly higher MADRS scores at baseline, than those with low scores in at least one measure ($p < 0.001$). Binomial regression indicated moderate-to-severe suicidal risk at baseline is predictive of both response ($p = 0.003$) and remission ($p < 0.001$) at week 8. In the aripiprazole group, those who remitted at week 16 demonstrated significantly lower suicidal ideation scores at week 8

than non-remitters ($p = 0.015$), indicating level of suicidal ideation prior to initiating aripiprazole treatment is correlated to remission. For both insomnia and suicidal ideation, a greater decrease in scores at 8 and 16 weeks significantly correlated with response/remission.

Conclusion

Results have the potential to aid in developing personalized MDD drug prescription practices.

Oral Session

O1:

Deprivation and mortality in 0 to 17 years old Russian youth

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BMC Proceedings 2022, 16(Suppl 6):O1:

Background

According to numerous studies, the relationship has been established between children's health and deprivation. The socio-economic status of parents has a strong influence on children's health. To date, the influence of environmental deprivation on the health of children and adolescents remains poorly understood in Russia.

Methods

All data were taken from Federal State Statistics Service for 2010. The principal component analysis was used to create the index that includes 17 indicators reflecting the socio-economic and environmental (natural disasters, air quality) deprivation at the regional level in Russia. The deprivation index levels were divided into four quantiles. The deprivation effect was assessed by comparing four quantiles. The first quantile is the least deprived population, the fourth quantile is the most deprived population. A negative binomial regression was used to establish the relationship between all-cause mortality rate (per 100,000 person-years) at the age of 0-17 years (both sexes/males/females) and deprivation. Spearman's correlation is used to establish an association between deprivation and individual causes of death at the age of 0-17 (both sexes/men/women): respiratory diseases (pneumonia), external causes (suicides and traffic accidents).

Results

The risk of death of the entire population aged 0-17 years increases by 22% (95% CI 1.04-1.43, $p = 0.014$) in Q4 compared to Q1, among men and women mortality increases by 20% (95% CI 1.02-1.4, $p =$



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P45:**The Effect Of Body Composition On Renal Hemodynamic Parameters In Potential Male Kidney Donors**

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BMC Proceedings 2022, 16(Suppl 6):P45:

Introduction

It is estimated that overweight people are up to three times more likely to suffer from end-stage kidney disease. This is mostly attributed to the most common comorbidities in this population such as hypertension and diabetes. However, some researchers suggest that obesity is a direct risk factor for the changes in kidney function. Moreover, effective renal plasma flow (ERPF) is commonly indexed to Body surface area (BSA), which can be misleading in people with abnormal body composition. Therefore the aim of the present study was to analyse effective renal plasma flow rate in healthy male potential kidney donors and determine potential correlation between effective renal plasma flow and body composition parameters such as body weight, fat mass, fat-free mass, body mass index, BSA and height.

Methods

The study was a retrospective analysis of data obtained from medical documents. The study group consisted of 39 healthy male potential kidney donors of average age 52.2 ± 12.6 years. The analysis of laboratory blood sample results, radionuclid clearance of hippuran and anthropometric measurements has been performed.

Results

Median of Body mass index (BMI) was 27,5 kg/m², which means that the majority of our examinees was overweight, with mean fat mass of 20,4% in total body weight. Mean rate of ERPF was 489,18 ml/min/1.73m² which is on the average 13,6% less than expected for their age. In our study we established negative correlation between ERPF and both fat ($r = -0,29$, $p = 0,03$) and fat-free mass ($r = -0,39$, $p = 0,02$).

Discussion

Examined hemodynamic parameter ERPF was within expected values considering the age of men who were potential kidney donors. Both fat mass and fat-free mass correlated negatively with ERPF which goes in favor of thesis of renal hemodynamics change in obesity.

P46:**The Relationship Between Mean Corpuscular Volume and Vitamin B12 Level in a Canadian Population**

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BMC Proceedings 2022, 16(Suppl 6):P46:

Introduction

Vitamin B12 (B12) is required by the body to synthesize red blood cells (RBC). B12 deficiency may lead to the development of megaloblastic anaemia, characterized by a decreased haemoglobin and increased mean corpuscular volume (MCV). This correlation is heavily emphasized in medical school curricula. However, reduced B12 level is not always correlated with increased MCV and vice versa. This may introduce issues when MCV is used as a diagnostic tool for B12 deficiency. This study aims to investigate the relationship between B12 deficiency and MCV in a Canadian cohort with asymptomatic B12 deficiency.

Methods

Using electronic medical records patients with B12 deficiency (n=83) were selected, along with controls (n=53). B12 levels of these patients were compared to their MCV levels at the time of diagnosis. Ethical approval was obtained. The data was analysed in STATA using logistic regression.

Results

The logistic regression model showed no significant association between MCV and B12 levels (OR:1.04, CI 0.98-1.12, $p=0.175$).

Discussion

These results show that MCV levels are not a reliable indicator of B12 deficiency. The heavy emphasis on the relationship between B12 levels and MCV in medical school curriculum may lead to confusion among medical students. Some primary care facilities still use MCV to screen for B12 deficiency. This method is inaccurate and may delay diagnosis's, worsening patient outcomes. The relationship between MCV and B12 levels should continue to be a part of medical school curriculum, but students should be taught that elevated MCV is not a sensitive predictor of B12 deficiency.

P47:**The Way Bioinformatic Analysis Would Change The Diagnosis Of Maroteaux–Lamy Syndrome**

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BMC Proceedings 2022, 16(Suppl 6):P47:

Background

The diagnosis of lysosomal storage disorders is primarily based on enzyme assay and hence it could be challenging in most of the cases. This problem is well-illustrated by Mucopolysaccharidosis Type VI also known as Maroteaux–Lamy syndrome, in which the breakdown of glycosaminoglycans is damaged due to the deficiency in the enzyme arylsulfatase B (ARSB) caused by homozygous or compound heterozygous mutation in the ARSB gene (5q14). Particularly, due to ARSB disfunction dermatan sulfate and chondroitin sulfate molecules easily build up in cellular lysosomes, resulting in multi-organ affection.

Objective

The aim of our research is to ease the diagnosis of this rare autosomal recessive lysosomal storage disorder with the help of bioinformatic analysis. For this purpose, we are using a self-made program.

Methods

Using the results of a targeted DNA sequencing, a specific analysis of the ARSB gene can be performed with the help of the application we designed.

Results

The program written in C# is capable of recognizing the ARSB gene introduced in FASTA format and comparing it with the normal ARSB gene sequence, previously introduced. It can also determinate the exact positions and the type of nucleotides in which the introduced sequence differs from the normal one. In a further step the algorithm can transcribe the sequence of the introduced gene into mRNA, and even generate the structure of the protein encoded by this.

Conclusion

Bioinformatic processing provides a reliable and fast solution for early screening of Maroteaux–Lamy syndrome, because it recognizes any gene mutation and the necessary genetic sampling can be done within the first week after birth. In conclusion, this modern and cheaper procedure may be used in the future widely for the screening of Mucopolysaccharidosis Type VI, making it a well-appliable method for the future of precision medicine.

P48:**Travelling With Trauma: A Pilot Study Exploring How Distance Affects Patient Attendance at The Emergency Department in Rural Communities Surrounding CGMH**

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BMC Proceedings 2022, 16(Suppl 6):P48: