International Doctoral School
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"The common pathogenesis of obesity and major depressive disorder."

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Introduction

Obesity is characterized by an excessive accumulation of fatty tissue, which is associated with the deterioration of health. The World Health Organization (WHO) reports that 800 million people worldwide suffer from obesity and their number is constantly growing. A dangerous condition affects people of all ages.
In typical mild, moderate, or severe depressive episodes, the patient suffers from lowering of mood, reduction of energy, and decrease in activity. Capacity for enjoyment, interest, and concentration is reduced, and marked tiredness after even minimum effort is common. Sleep is usually disturbed and appetite diminished. Self-esteem and self-confidence are almost always reduced and, even in the mild form, some ideas of guilt or worthlessness are often present. Recurrent depressive disorder characterized by repeated episodes of depression as described for depressive episode , without any history of independent episodes of mood elevation and increased energy (mania). The first episode may occur at any age from childhood to old age, the onset may be either acute or insidious, and the duration varies from a few weeks to many months. It is among the most common diseases in the world according to the World Health Organization (WHO). According to forecasts, by 2020 it will be in the second place among the most common diseases, and by 2030 - in the first place.


Psychiatric and Psychological Interventions for Depression in Patients With Heart Disease: A Scoping Review

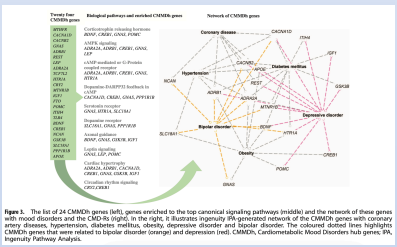


Figure 2. The list of 24 CMMDs genes (left), genes enriched to the top canonical signaling pathways (middle) and the network of these genes with mood disorders and the CMD-Rs (right). In the right, it illustrates ingenuity IPA-generated network of the CMMDs genes with coronary artery diseases, hypertension, diabetes mellitus, obesity, depressive disorder and bipolar disorder. The coloured dotted lines highlights CMMDs genes that were related to bipolar disorder (orange) and depression (red). CMMDs, Cardiometabolic Mood Disorders hub genes; IPA, Ingenuity Pathway Analysis.

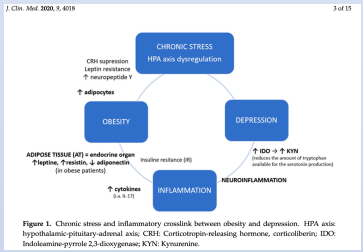


Figure 1. Chronic stress and inflammatory crosslink between obesity and depression. HPA axis: hypothalamic-pituitary-adrenal axis; CRH: Corticotropin-releasing hormone, corticoliberin; IDO: Indoleamine-pyrrole 2,3-dioxygenase; KYN: Kynurenine.


Is Interleukin 17 (IL-17) Expression A Common Point in the Pathogenesis of Depression and Obesity?

Aim

The aim of my project is to prove that depressive disorders are concepts that cross the boundaries of psychopathology. One of the tasks of the project is to demonstrate the relationship between the perception of specific symptoms of depression and the body's immune response through an increase in inflammatory parameters. The aim of my work is to find a correlation between obesity and depressive disorders.

Methodology

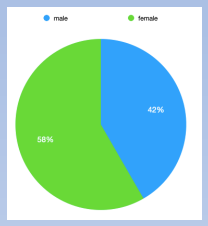
The level of chronic inflammation will be examined, measured by:
•adipokines:
•adiponectin,
•omentin-1,
•TNF-α,
•leptin,
•resistin,
•visphatin,
•interleukins associated with Th17 lymphocytes such as
•Il-1, Il-6, Il- 10, Il-12, Il-17, Il-22.
I will compare the level of miR-143 in people suffering from depression with a high BMI and those with normal values.

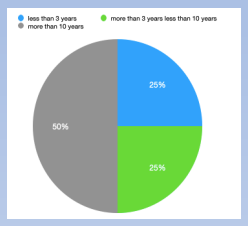
The study is conducted prospectively in the Łódź agglomeration on patients diagnosed with major depressive disorders, the control group are mentally healthy people.
The weight and height of the patients are measured. Venous blood from patients stained on an EDTA medium. The severity of depressive symptoms is measured using the Hamilton scale.
Tested for the quantification of miR-143, adiponectin, omentin -1, TNF-α, leptin, resistin, visfatin, IL-1, IL-6, IL-10, IL-12, IL-17, IL-22. The analysis will be performed by RT-PCR and ELISA methods.

Work progress and preliminary results

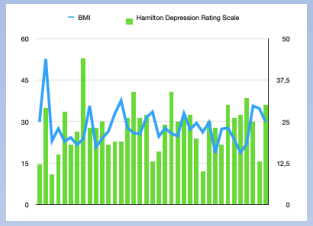
Approval of the bioethics committee at the Medical University of Lodz was obtained. Recruitment of patients to the study group began. Consent was obtained from 50 participants suffering from recurrent depressive disorders. Blood collected from patients on the EDTA medium was secured, labeled in a way that prevents identification of personal data and frozen at minus 24 degrees Celsius while awaiting laboratory tests. Among the survey participants are 58% women and 42% men. The average age is: 48.81 years. Most of the patients 45% have higher education. 27% of patients declared somatic comorbidities, including diabetes and hypertension. 50% of patients suffer from depression for more than 10 years.
The average BMI is 27.09. The result on the Hamilton scale averages 23.27 points. There is a positive correlation between body weight and Hamilton's score.
The group of patients is too small to be able to talk about statistically significant results. It is necessary to continue research.

graph 1
gender distribution





graph 2
distribution of the length of the course of disturbances



graph 3
the correlation of BMI between Hamilton Depression Rating Scale

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