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Project STRESS - NeuroWAD

Summary: This project examines how work-related stress affects our brains and uses brain scans from a PET/MR scanner, which is a brand-new type of scanner. The participants in the project are patients with severe stress, and they are compared to healthy control persons. The project has been approved by the Scientific Ethics Committee and the Danish Fundraising Board.

Neurobiological effects of work-related stress Background

Our brains are the most important raw material of the modern world, but stress is now one of the greatest burdens in the entire Western world, and more and more people are getting ill. We know that long-term stress affects the brain negatively and that there is a connection between a stressed work environment and a number of mental disorders as well as dementia, cardiovascular disease, and accidents. The most important stress factors in the work environment are job security, lack of influence on one's own work situation, and lack of support from management and colleagues. On the other hand, there is very little known around the world about how the disease stress affects our brains and barely nothing at all about how it affects our feelings and thoughts, which are also called emotional and cognitive functions.

Stress

Stress is one of the biggest burdens of disease in Denmark, it is a critical condition both physically and mentally. Patients not only experience discomfort due to changes in their body's functions that can be potentially life-threatening, but also find themselves in a mental state of despair, reporting to have lost themselves and the very basis of their identity and self-perception.

Research

This project has been developed on the basis of a hypothesis that cognitive and emotional symptoms, such as loss of motivation, poor mood, difficulty concentrating and thinking, are symptoms of stress and that changes in the brain's metabolism and in particular in its "reward system" are the underlying mechanisms of the symptoms. The brain's reward system forms the basis for motivation and is based on the brain's primary reward substance, dopa-

mine, which in recent years has proven to be crucial to the mental competencies most valued in modern society. The purpose of this project is therefore to map the effects of work-related stress, focusing on the emotional and cognitive functions of the brain reward system.

Project partners

The project is carried out as a collaboration between the Department of Nuclear Medicine and the Department of Occupational and Environmental Medicine at Odense University Hospital (OUH), as well as the Centre for Neuropsychiatric Depression Research, Rigshospitalet in Glostrup.

Design and procedure

Using newly installed PET/MR scanners, we are examining brain function in patients affected by work-related stress. Patients are recruited by the Department of Occupational and Environmental Medicine at OUH and matched with a healthy control group. Both the patients and control persons undergo a series of brain scans in a PET/MR scanner. The scans use up to three different tracers - one to assess metabolism in the different parts of the brain and two others to examine brain regions of importance for reward, motivation, and higher cognitive functions in the dopamine system. The scans are performed partly at rest and partly while the participant solves a task while lying in the scanner. In this way, we can activate the areas of the brain that we want to study and can investigate how a typical stress patient copes compared with control persons who have normal emotional and cognitive function. These scans allow us to evaluate whether there are changes in patients that might be caused by stress-related changes in the brain.

For further information see the link below or contact the project manager:

<https://open.rsyd.dk/OpenProjects/openProject.jsp?openNo=483&lang=da>

Contact:

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Become a control person:

The project seeks healthy control persons and searches through the Citizen and Science campaign.

For more detailed information, please contact project manager Saga Steinmann Madsen at Saga.Steinmann.Madsen@rsyd.dk or phone +45 2917 9196.

Press:

The NeuroWAD project was nominated in its early phase to win 1 million DKK in research funding and achieved an excellent second place. Watch the TV video about the project here:

Video and articles from TV2:

<https://www.tv2fyn.dk/artikel/ny-forskning-kan-afsloere-billeder-af-stress-i-hjernen>

Support the project

MobilePay: 43235

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International contributions:

SWIFT: JYBADKKK

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NB: Danish and international - Mark your contribution with "STRESS"

The project is disseminated and administered by OUH Odense University Hospital. Any profits will go to research at OUH Odense University Hospital.

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