

Inflammatory bowel disease (IBD) is a chronic autoimmune disease which mainly include Crohn's disease and ulcerative colitis. The incidence of these diseases in developed countries is still increasing. The number of those patients in Poland amounts around 50 000. Most of them are very young people whose disease significantly reduces their professional and private lives. The diagnosis and treatment are considerably financially consuming both for insurance provider as well as the patients. The main symptoms are: diarrhoea (up to 20 bowel movements during 24 h , often in the night) and strong abdominal pain. Abscesses and fistulas (abnormal connection of various parts of the intestines or intestines with the skin) often form. Because conventional treatment is not always effective, patients undergo numerous surgical procedures. Recently biological therapies, aiming at the main inflammatory molecules are being widely introduced. However, these drugs are also ineffective in some patients. Therefore, there is a strong need to look for the factors that would allow to predict the effects of such therapies and may be the target for the new drugs development. So far there are no factors that could clearly predict the outcome of the therapy. IBD pathogenesis is not clearly elucidated yet. More and more often, psychological aspects are mentioned, as playing the significant role in the disease development and exacerbations, among them sleep disturbances, depression, emotional problems.

Sleep is a physiological state that still remains a mystery to scientists. It has been proven that sleep has a big impact on autoimmune diseases generally. Unfortunately, the role of sleep disorders in IBD has not been addressed yet. Understanding the molecular basis of sleep disorders, or factors that have a proven effect on sleep quality, such as depression and pain can contribute to the knowledge about the gut-brain axis and explain the effect of daily stress on the development of intestinal diseases. This project will examine sleep disorders and the mechanisms in which it affects the inflammation of the intestines, which will create a more personalized approach to patients with IBD. In this study, several neurotransmitters will be examined- molecules that transmit information in the body, which are secreted by neurons (also those found in the gastrointestinal tract) and are responsible for our mood and circadian rhythm. Examining them can explain these issues and become a new therapeutic goal. Sleep problems are a frequent complaint reported by patients with IBD, that's why we believe that the results of this study will allow us to better help these persons in their daily struggle with this severe and not yet fully understood disease.