

Neuroendocrine tumors (NETs) are a diverse group of neoplasms that can occur in different parts of the body. NETs have the ability to produce and secrete hormones, although not all of them do. Diagnosing NETs can be challenging, because they often present without specific symptoms, which results in late detection and poor outcomes. Chromogranin A has traditionally been used as a biomarker for diagnostic and prognostic purpose, however it has several limitations. The lack of accurate and widely available NET biomarkers remains an important unmet need in the fields of endocrinology and oncology.

In the past few years, researchers have discovered several new biomarkers showing promise for use in NETs. Among them are short RNA molecules called microRNAs, which are involved in gene regulation. Different types of microRNAs with various purposes can be found in healthy tissue, tumor tissue, and circulating in the blood. In other neoplasms, such as ovarian cancer, breast cancer, and melanoma, altered levels of specific microRNAs have been used for establishing diagnosis, predicting treatment response and prognosis. Similar patterns have been observed in NETs, although more research is required to fully understand their role.

We aim to investigate expression of microRNAs in the blood of NET patients and compare them to a group of healthy individuals. We want to determine if these microRNAs can distinguish between different types of NETs and differentiate NET patients from healthy volunteers. We plan to recruit 40 patients with pancreatic NETs, 40 patients with small intestine NETs, and 40 healthy volunteers. Test group will be recruited from patients qualified for somatostatin analog treatment at the Department of Endocrinology in Poznań, which currently takes care of over 200 patients of different primary locations.

Over the course of the study, we will perform venous blood sampling to acquire biological material. Following the procedure, microRNAs will be isolated and analyzed. At the same time, we will perform routine laboratory tests and prepare a subject database. Data will be processed and will undergo statistical analysis. Results will be published in specialist journals and presented at scientific conferences.

NETs affect only a small number of people, and the Department of Endocrinology, Metabolism and Internal Disease in Poznań is the only place for NETs treatment within the Wielkopolskie region. Our study will be the first to investigate microRNAs in the Polish NET population. By examining a relatively large group of patients, we hope to contribute significantly to understanding NETs and discovering new markers.

We anticipate identifying specific microRNAs that can be used for diagnosing NETs and predicting the primary location of the tumor. Our research findings may lead to improved diagnostic tests, better treatment options, and ultimately, improved outcomes for NET patients. We plan to share our discoveries with the medical community by publishing our results in scientific journals, ensuring that this information is accessible to everyone.