DESCRIPTION FOR THE GENERAL PUBLIC

Vulvar cancer is a rare malignancy in gynecological tumors. In Poland, 500 new cases are recorded every year. Most often vulvar cancer affects older than 65 years women, but can also affect the younger women. It has been hypothesized that vulvar intraepithelial neoplasia is the direct precursor of vulvar cancer. The prognosis depends on the stage of the disease. Risk of lymph node spread is proportional to the tumor size and invasion depth. In the early stage the chances for five years survival are very large. Vulvar squamous cell carcinoma is the most common histological type of vulvar cancer representing approximately 90% of all cases. The treatment method depends on the stage of the disease. Certain factors appear to increase the risk of the disease i.e. human papilloma virus - HPV infection.

Due to the fact that vulvar cancer is a rare type of cancer there is limited amount of scientific data on the mechanisms of its development, course and biomarkers that could enable physicians to individualized treatment. However, recently discovered tiny particles of microRNAs having a pivotal role in the gene regulation process and may play this role. Due to their physical stability and dynamic responsiveness to changes in the human body, microRNAs appear to be ideal biomarkers. In addition, those particles are circulating in our blood so they can be collected as easily as blood for the morphology tests.

We have already selected the initial microRNA molecules that are stable in the blood and could serve as a reliable and precise reference for the further assessment of the expression of all 754 molecules of microRNA. The main objective of this project is to demonstrate the microRNAs expression in the blood of patients with vulvar cancer and its precancerous lesions. Ability to perform research on a large amount of samples obtained from patients with clinically well-characterized disease provides a unique opportunity to learn which microRNAs and molecular mechanisms participate in the development and progression of vulvar cancer and identification of these microRNAs that could be potentially used in the clinic. In the nearest future, microRNAs could serve as a biomarkers supporting treatment decisions (for example omitting lymph node dissection or introduction of additional therapy), which could improve the results of treatment of patients with cancer of the vulva.

Both, clinical data and biological material banked at the Department of Molecular Oncology and Translational Oncology Institute will be used to analyze the usefulness of profiling circulating microRNAs in women with precancerous and cancerous lesions of the vulva. It will contribute to a better understanding of the molecular mechanisms responsible for the progression of vulvar cancer. Also, for the first time microRNAs will be validated as a potential circulating biomarker in that disease. We hope that the profile of circulating microRNA could serve as a tool for the not only for the evaluation of the treatment process but also could influence the choice of the treatment method.