Enabling precision oncology in rare types of gynecologic cancer

Scientific abstract

This study proposal follows the submission of a White Paper on Rare gynecological cancers prepared by Ovarian Cancer Canada in conjunction with a team of over 45 research partners across 7 different provinces in Canada. The intention of this study is to better understand the cancer biology of rare and understudied cancers, which represent novel cohorts for inclusion in the TFRI MOHCCN. The overall goal is to collect and molecularly characterize rare gynecologic cancers across Canada, for which standardized clinical guidelines are currently lacking and patient outcomes remain poor. These cancers are known to have limited conventional and targeted therapies available resulting in high mortality rates. The current focus is rare ovarian cancers. Ovarian cancer is classified into five histotypes, with high-grade serous ovarian being the most common, representing over 70% of all diagnoses. Other rare histotypes include low-grade serous, mucinous, clear cell and endometrioid ovarian carcinomas. Recent work on molecular characterization has allowed deeper understanding of these cancers for further classification and identification of potential therapeutic targets. Potential targets will be further assessed using state-of-the-art techniques to validate their utility in cancer treatment. This research provides the opportunity to study genomic landscapes and to identify potential cancer vulnerabilities. These will help accelerate the adoption of precision medicine strategies to help improve patient outcomes.

Plain language abstract

Each year, about 12,000 Canadians will be diagnosed with gynecologic cancer, with approximately 50% of these cases being rare types. Patients diagnosed with these rare gynecological cancers face significant challenges due to the lack of understanding of the disease and limited treatment options. Our Pan-Canadian Rare Gynecologic Cancers group is dedicated to studying these cancers at the molecular level. This has led to the identification of genetic changes that have a significant impact on the diagnosis, clinical management and/or outcomes of patients. These discoveries were made using retrospective databases and biobanked cases, as contemporary data remains a challenge. The goal of this research is to improve our understanding of rare gynecological cancers. Ovarian cancer is a particularly serious concern, with five different types, including high-grade serous ovarian cancer, which is the most common. Other rarer types include low-grade serous, mucinous, clear cell, and endometrioid ovarian cancers. This project will allow for better understanding of the specific changes in the genetic make up, as well as how particular treatments affect the cancer and neighboring cells. This will make sure that the right treatment is given to the right patient at the right time.