

New thesis on the role of oestrogens and antibiotics on cancer development evaluated in epidemiologic studies.

Johanna Simin from the Centre for Translational Microbiome Research will defend her doctoral thesis “The role of oestrogens and antibiotics on the development of cancer” on June 1, 2021.

Principal supervisor: Associate Prof Dr Nele Brusselaers, Karolinska Institutet.

Co-supervisors: Prof Dr Lars Engstrand, Karolinska Institutet; Prof Dr Steven Callens, Ghent University Hospital, Belgium; and Prof Rulla M. Tamimi, Cornell Weill Medicine, New York, USA.

Mentor: Associate Prof Dr Joel Monárrez-Espino.

What’s the focus of your thesis?

This thesis aimed at evaluating the long-term effects of commonly prescribed drugs on the risk of cancer. Studies included assessed the potential impact of menopausal hormone therapy on cancer and cancer-specific mortality risks among Swedish women utilizing the high-quality registries based on prospective and population-based cohort designs. Additionally, a systematic review with a dose-response meta-analysis was carried out to explore the association between oral antibiotics intake and the risk of colorectal cancer.

What are your main findings?

Overall, the cancer risk associated with menopausal hormones was slightly higher compared with the reference population. Yet, the excess risk of mostly reproductive organ cancers was almost offset by the lower risk of gastrointestinal tract cancers. In fact, our data suggested better colorectal cancer survival in pre-diagnostic past users of oestrogens. On the other hand, the meta-analysis revealed an increased risk of colorectal cancer, particularly among broad-spectrum antibiotic users but with a weak dose-response association.

How can these results contribute to people’s health?

Apparently, the carcinogenic risks linked to the use of menopausal hormones have been overestimated if used according to the recommendations. If treatment is initiated close to menopausal onset among healthy women without contraindications or an increased risk of reproductive organ cancers, the benefits seem to outweigh the risks. Regarding the use of antibiotics, the increased risk of colorectal cancer observed point to stricter prescription guidelines, especially for individuals with risk factors.

What are your future directions?

I want to continue conducting meaningful and applicable pharmacoepidemiologic research on the safety of commonly prescribed medications taking advantage of the high-quality register-based data available in the Nordic countries to identify potential risks or even health benefits for human health.