

## The net effect of menopausal hormone therapy on the risk of cancer: A Swedish population based cohort study

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### Abstract

**Statement of the Problem:** Menopausal hormone therapy (MHT) appears to influence carcinogenesis. Whereas studies of individual cancer sites are crucial for causal inference, the net effect of MHT on the total cancer risk remains unknown, and can provide valuable insights for clinical management and guidance of women with menopause related symptoms. **Methodology and Theoretical Orientation:** This nationwide Swedish population-based cohort study was based on the Swedish Prescribed Drug Registry. All 290,186 women aged  $\geq 40$  years having received dispensed prescriptions of systemic MHT during 2005-2012 were included. The risk of cancer was presented as standardized incidence ratios (SIRs) and 95% confidence intervals (95%CI), comparing MHT ever-users to the entire Swedish female background population. **Findings:** The risk of any incident cancer following MHT ever-use was slightly increased (SIR=1.09, 95%CI 1.07-1.11). The risk was lower among oestrogen only (E-MHT) users (SIR=1.04, 95%CI 1.01-1.06) than oestrogen combined progestin (EP-MHT) users (SIR=1.14, 95%CI 1.12-1.17). Of the oestrogen formulations, tibolone increased the risk (SIR=1.14, 95%CI 1.08-1.21). Of the EP-MHT regimens, continuous progesterone (SIR=1.12, 95%CI 1.07-1.17) and testosterone derived (SIR=1.24, 95%CI 1.20-1.28) regimens increased the cancer risk, whereas no apparent association was found for sequential regimens. The risk of main female reproductive organ cancers was increased, notably among women  $\geq 70$  (SIR=2.25, 95%CI 2.08-2.42). In contrast, an inverse association was observed for combined gastrointestinal tract cancers (SIR=0.90, 95%CI 0.86-0.94). **Conclusion and significance:** MHT, notably EP-MHT use, was associated with a limited increase in overall cancer risk. However, different formulations and regimens might affect the cancer risk.



### Biography:

Johanna Simin, is currently a Doctoral Student in Medical Science (PhD) at the Centre for Translational Microbiome Research at Karolinska Institutet in Stockholm, Sweden. She has received her main clinical training in Finland, most of the academic training in Sweden and she has gained a broad knowledge of clinical epidemiology, and a passion for women's health. Her focus is to better understand the effect of commonly prescribed drugs on the development of cancer among women. Most of her studies are based on the large, nationwide and population-based Chemoprevention of Cancer cohort, including over 7.5 million Swedish residents.

### Speaker Publications:

1. "Antibiotic use and the risk of breast cancer: A systematic review and dose-response meta-analysis"; *Pharmacological Research* Volume 160, October 2020, 105072
2. "Safety of Proton Pump Inhibitors Questioned Based on a Large Randomized Trial of Patients Receiving Rivaroxaban or Aspirin"; *Gastroenterology* 158(4)
3. "Menopausal hormone therapy treatment options and ovarian cancer risk: A Swedish prospective population-based matched-

cohort study”; International Journal of Cancer/ Volume147, Issue1.

4. “Menopausal hormone therapy and cancer risk: An overestimated risk?”; European journal of cancer 84:60-68

5. “Recyclable glutaraldehyde cross-linked polymeric tannin to sequester hexavalent uranium from aqueous solution”; Journal of Molecular Liquids/ Vol 281, 2019, Pages 29-38.

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