**Age at natural menopause: associated factors, temporal trends, and consequences**

**Introduction**

Age at last menstruation (menopause) has implications for women's fertility, aging, and health. Despite a wide variation in age at menopause, we have surprisingly limited knowledge about factors that determine a woman’s age at menopause. Our recent data indicates that the age at menopause is increasing in Norway. Changes in age at menopause over time can have implications for women's fertility and health. The increase in mean age at menopause may represent positive news for Norwegian women who desire children at an older age. A later menopause in the population can also be beneficial as it reduces the risk cardiovascular diseases, osteoporosis, and dementia. However, an increasing age at menopause can have adverse health effects since a late menopause and a long reproductive period are associated with increased risk of developing hormone-related cancers. The incidence of hormone-related cancers has increased in Norway. This increase may be partially attributed to changes in the age at menopause, although reliable knowledge is currently lacking.

**Aims**

In this project, we study factors that may be determinants of age at natural menopause and the consequences of having early or late menopause for breast and endometrial cancers, cardiovascular death, and all-cause death. We will also estimate to what extent age at menopause mediates or moderates the associations of lifestyle factors with these major health outcomes after the menopause. Such knowledge will add to our understanding of disease development and is necessary for prevention.

**Study design, participants, and data collection**

Our cohort includes more than 500 000 women aged 50 to 69 years who participated in the Norwegian breast screening program during the years 2006-2015. In this period, all invited women were asked to fill in two questionnaires in connection with the biennial screening examinations. The questionnaires were administered by the Cancer Registry of Norway. The data comprises detailed information about socio-demographic factors, menstruation, hormonal contraception, number of childbirths, breastfeeding, and lifestyle factors across the life course (e. g., body mass, physical activity, smoking habits, and alcohol consumption). These individual data are linked to information about incident cancers in the Cancer Registry of Norway. During our study period, approximately 84% of the invited women attended the breast screening programme at least once. Among these, approximately 63% answered both questionnaires that were used in our study. Thus, the women in our cohort represent approximately 50% of all women in Norway aged 50 to 69 years during 2006-2015.

**Collaboration**

The project is anchored at Akershus University Hospital (Ahus) and is a collaboration effort with Oslo Metropolitan University (OsloMet) and the Cancer Registry of Norway.

**Project group**

Professor Anne Eskild, MD PhD, Ahus and University of Oslo; Professor Elisabeth K Bjelland, PhD, OsloMet and Ahus; Professor Solveig Hofvind, Cancer Registry of Norway and The Arctic University of Norway; Researcher Nathalie Støer, PhD, Cancer Registry of Norway; Julie Røgler Langås, PhD fellow, OsloMet; Researcher Marie Søfteland Sandvei, NTNU.

**Ongoing PhD project (2021-2024)**

PhD fellow Julie Røgler Langås, OsloMet. “Lifestyle across the life course and health outcomes at an advanced age: does age at menopause matter?”

**PhD thesis**

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