Ovarian tumors; Biomarkers, surgical outcome and survival after ovarian cancer treatment.

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Background:

Two thirds of ovarian cancer patients are diagnosed in advanced stage, with poor prognosis. A variety of tumor markers in blood have been found inadequate in screening for early stage ovarian cancer.

Centralization of ovarian cancer surgery is recommended since 2012 in Sweden. Still patients have primary surgery at regional hospitals.

Studies on ovarian cancer survival are heterogeneous and few report histology and long-term survival.

Aims / Methods:

I: Analysis of the ability of a panel of up to four plasma biomarkers (B7-H4, CA125, HE4, suPAR) to discriminate between benign and malignant tumors and second to assess the biomarker panel as a predictor of overall survival in patients with epithelial ovarian cancer.

II: Multiplex analyses using proximity extension assay of 177 biomarkers in plasma from 180 patients with ovarian tumors of benign, borderline and malign pathology with the aim to identify a broader biomarker panel for discrimination between benign and malignant tumors.

III: A population-based survey of ovarian cancer surgery in Sweden 2013-15. Data from the GynOp registry were analyzed for patients treated at tertiary centers and regional hospitals.

IV: A nation-wide study of ovarian cancer survival by site, histology, age and time period with data from the Swedish Cancer Registry 1960-2014.

Preliminary results:

I: The biomarker panel suPAR(II-III), HE4, CA125 and age improves discrimination between malignant and benign ovarian tumors compared to the established ROMA-algorithm in premenopausal women. Published 2016.

II: Statistical analyses ongoing.

III: Tertiary centers perform more extensive surgery compared to regional hospitals without increased frequency of major complications. Tertiary centers display differences among patient selection for primary debulking surgery, as well as in achieving no residual tumor. Published 2017.
IV: Survival in ovarian, tubal, peritoneal and undesignated site cancer in Sweden has improved over the last six decades, although not for the youngest and the oldest patients. Ten-year survival is unchanged since 1960. To be submitted spring 2019.

Implications:

There is a need for further centralization of ovarian cancer surgery in Sweden. Despite advances in ovarian cancer treatment long-term survival has not improved. A biomarker panel for the detection of early stage ovarian cancer is urgently needed and proteomics seem a promising tool to identify new candidate biomarkers and biomarker panels.

Published papers:
