

Centralized Ovarian Cancer Care Complications, Costs, and Survival

Akademisk avhandling

Som för avläggande av medicine doktorsexamen vid Sahlgrenska akademien, Göteborgs universitet kommer att offentligens försvaras i Hjärtats aula, Sahlgrenska Universitetssjukhuset, Vita stråket 12, Göteborg, den 13 maj, klockan 09.00

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Avhandlingen baseras på följande delarbeten:

- I. Dahm-Kähler P, Palmqvist C, Staf C, Holmberg E and Johannesson L. **Centralized primary care of advanced ovarian cancer improves complete cytoreduction and survival – A population-based cohort study.** *Gynecol Oncol* 2016 Aug; 142(2):211-216
- II. Palmqvist C, Staf C, Mateoiu C, Johansson M, Albertsson P and Dahm-Kähler P. **Increased disease-free and relative survival in advanced ovarian cancer after centralized primary treatment.** *Gynecol Oncol* 2020 Nov; 159(2):409-417
- III. Palmqvist C, Michaëlsson H, Staf C, Johansson M, Albertsson P and Dahm-Kähler P. **Complications after advanced ovarian cancer surgery – A population-based cohort study.** *Accepted for publication in Acta Obstetricia et Gynecologica Scandinavica.*
- IV. Palmqvist C, Persson J, Albertsson P, Dahm-Kähler P and Johansson M. **Societal costs of ovarian cancer in a population-based cohort – a cost of illness analysis.** *Submitted.*

Centralized Ovarian Cancer Care

Complications, Costs, and Survival

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Abstract

Background: Ovarian cancer is often diagnosed at advanced stages, and its mortality is high. Surgical treatment of advanced ovarian cancer strives toward complex primary debulking surgery (PDS), aiming for complete cytoreduction (R0) and improved survival. With more complex surgery, complications may increase and affect the crucial adjuvant chemotherapy, which is aimed to start within 21 days. New treatment strategies may cause health care costs to rise, although the cost of illness may fall due to lower costs of production loss.

Aim: The overall aim of this thesis was to explore survival, surgical complications, and costs in a population-based cohort in which ovarian cancer care has been centralized.

Material and methods: The thesis is based on four population-based cohort studies with data from the Swedish Quality Register for Gynecological Cancer. Cost analyses added data from the regional health care database and data on sick leave and income levels from Statistics Sweden.

Results: **Paper I** reports that R0 at PDS increased from 37% to 49%, and the interval between PDS and chemotherapy decreased from 36 days to 24 days after centralization. The 3-year relative survival (RS) rate in women treated with PDS increased from 44% to 65% and, in the entire cohort regardless of primary treatment, from 40% to 61%. The subsequent **Paper II** shows an increased 5-year RS from 24% to 37% after centralization. Median survival increased from 27 months to 44 months, and median disease-free survival (DFS) increased 23%. Centralization and R0 were independent factors associated with increased RS and DFS. **Paper III** examines complications within 30 days of surgery after centralization. We found that complex surgery is an independent prognostic factor associated with severe complications. Low preoperative albumin level, residual disease and PDS were found to be associated with severe complications. Severe complications do not seem to affect the completion of adjuvant chemotherapy. **Paper IV** examines the cost of illness of ovarian cancer after centralization. More than half the cost of illness, or 59.1%, consisted of the indirect costs of production loss due to sick leave and premature death. There was no difference in the cost of illness depending on income level. The direct outpatient cost differed depending on residential area.

Conclusions: Survival increased after the centralization of primary care for advanced ovarian cancer. Complex surgery is associated with severe complications, but these complications do not affect the completion of adjuvant chemotherapy. The societal cost of ovarian cancer may fall with treatments that prolong survival and cost-of-illness studies needs to be incorporated in the analysis of major organisation and treatment changes.

Keywords: Ovarian cancer, Survival, Centralization, Surgery, Cytoreduction, Residual disease, Postoperative complications, Cost of illness, Direct costs, Indirect costs, Epidemiology