

PhD Thesis:**Ovarian function and uterine characteristics in long-term survivors of childhood cancer.****By Elisabeth C. Larsen MD, PhD**

The Ph.D. thesis includes a review and 4 papers. The project was carried out at the Fertility Clinic, Rigshospitalet in the period from 2000 to 2003.

The aim of the project was to provide a comprehensive knowledge of the reproductive late adverse effects that may occur following treatment of a malignancy in childhood.

One hundred adult female survivors of childhood cancer and 21 controls of similar age participated in the research program. All patients had received radiotherapy and/or chemotherapy.

Seventeen patients had developed ovarian failure following the anti-neoplastic treatment. Thirteen patients used oral contraception. Examination of 70 patients with spontaneous menstrual cycles revealed endocrine and sonographic evidence that their ovarian biological age was more advanced than their chronological age. Selected patients with normal basal FSH and normal mean cycle length had sonographic signs of ovarian follicular depletion. Irradiation to fields that included the ovaries, alkylating chemotherapy, old age at treatment, and a long follow-up period were individual factors that contributed to impairment of the ovarian reserve.

Patients treated before menarche with total body, pelvic, or whole abdominal irradiation had severely reduced uterine size. No improvement in uterine volume, endometrial thickness or blood supply was observed in selected patients in response to 3 months of high-dose estrogen replacement therapy.

In conclusion, the results suggest that anti-cancer treatment in childhood may carry a high risk of inducing premature ovarian failure. Further, patients with an apparently normal ovarian function may have a diminished ovarian reserve possibly shortening their fertile period. Total body, pelvic, and whole abdominal irradiation in childhood reduces adult uterine size, and the radiotherapy-induced damage is probably irreversible. If pregnancy is achieved the uterine volume factor is important to recognize since there may be a high risk of mid-trimester miscarriages.