

Paris, November 22, 2012

Press release

Predicting the age at menopause of women having suffered from childhood cancers

Researchers from Inserm, the French public hospital organization (AP-HP), the Gustave Roussy and the studied the age at menopause of a cohort of 706 women who had suffered from childhood cancer. The data revealed that these women, in particular those who had undergone unilateral oophorectomy or who had been treated with alkylating agents and who had received a radiation dose to the ovaries, were menopausal on average 4 to 7 years earlier than average. This study provided important data about the fertility window of women who had suffered from childhood cancer and information concerning the associated risk factors, but did not confirm the greater risk of premature menopause (before the age of 40) that was reported by the American studies.

The results were published in the review [Human Reproduction](#) of November 15.

Women who have suffered from childhood cancer are known to run a greater risk of premature menopause. However, data about the associated risk factors is limited. Researchers from unit 1018 "Centre for Research in Epidemiology and Population Health (CESP)" (Inserm/Université Paris-Sud/Institut Gustave Roussy) and from the AP-HP analyzed the data from a French cohort, named Euro2k, concerning 1522 survivors of childhood cancer diagnosed between 1945 and 1986 when they were under 18, initially in order to study the mortality rate. The study estimated the radiation doses received at the ovaries by the women in this cohort who had been treated by radiotherapy. 706 of these women filled in a detailed questionnaire about their state of health. 32% of these women had already reached the age of 40 years; 7% were over 50 years of age. The research team studied the age at menopause of these women and the potentially associated risk factors. The researchers based this study on self-reported questionnaires sent to the women in order to obtain information about the menopause, without confirming by measuring FSH levels.

Analysis of this data showed that 97 women (13.7%) were menopausal at a median age of 44 years, in other words, 7 years earlier than the general population. For a third of these women (36%), menopause was surgically induced.

The researchers concentrated on the risk factors of menopause in these women, who had been subjected to various cancer treatments during childhood. It appeared that being treated during puberty was associated with a risk of non-surgical menopause. At a given age, the maximum risk of early menopause was observed in women who had been treated after the onset of puberty with alkylating agents (either alone or along with even a minimum dose of radiation to the ovaries, for example 0.01 Gray). Menopause occurred on average 4 years earlier in women who had been exposed to these agents. Having undergone unilateral oophorectomy is also associated with a 7-year earlier age at menopause.

The results showed that women who had suffered from a childhood cancer were more likely to suffer from early menopause, but did not conform the high risk of premature menopause (in other words, before 40 years of age), such as was reported in the American studies. This is probably due to the difference between the populations studied (there were no cases of leukemia or lymphoma in the Euro2k cohort population).

"In this cohort , very few women had received high doses of radiotherapy in order to receive bone marrow transplants, and only 21% of them (i.e. twice the occurrence of the general population) suffered premature menopause before the age of 40", explained Cécile Teinturier, the principal writer of the study. The main risk factors associated to these cases of premature menopause are: the older the women is when being treated for cancer, the dose of alkylating agents such as Cyclophosphamide or Melphalan received during bone marrow transplants, and the radiation dose received at the ovaries.

"This study provided information about the risk factors affecting the fertility window of women who have suffered from childhood cancer. This new data should help both to inform patients who are at risk of premature menopause, by advising them not to delay their first pregnancy until after the age of thirty, and to reassure women who present a low risk" concluded Cécile Teinturier.

It is planned to extend Cohort Euro2k to cover all patients treated for solid cancers who were under 18 years of age before the year 2000 in France. The aim is to study the impact of high-dose chemotherapy on the occurrence of premature menopause.

Sources

Age at menopause and its influencing factors in a cohort of survivors of childhood cancer: earlier but rarely premature.

Cécile Thomas-Teinturier^{1,2}, Chiraz El Fayech^{1,3,4}, Odile Oberlin^{1,3}, Hélène Pacquement⁵, Nadia Haddy^{1,3,4}, Martine Labbé^{1,3,4}, Cristina Veres^{1,3,4}, Catherine Guibout^{1,3,6}, Ibrahima Diallo^{1,3,4}, and Florent De Vathaire^{1,3,4}

1 Radiation Epidemiology Group, Center for Research in Epidemiology and Population Health (CESP) – INSERM U1018, Villejuif F-94800, France

2 Department of Pediatric Endocrinology, APHP, Hôpital de Bicêtre, 78 rue du Général Leclerc, Le Kremlin-Bicêtre F-94270, France

3 Institut Gustave Roussy, Villejuif F-94800, France

4 University Paris-Sud XI, Villejuif F-94800, France

5 Department of Pediatric Oncology, Institut Curie, Paris F-75005, France

6 INSERM U970, Paris F-75015, France

[Human Reproduction](#) (2012), online November 15

Doi: 10.1093/humrep/des391

Research contact

Cécile Thomas-Teinturier

Researcher at combined research unit 1018 "Center for Research in Epidemiology and Population Health"

(CESP - Inserm / Université Paris-Sud / Institut Gustave Roussy)", Villejuif Hospital practitioner, Hôpital de Bicêtre, Paris (AP-HP)

01 45 21 78 52 (hospital – Thursday, November 11)

01 42 11 41 14 (laboratory – Friday, November 11)

cecile.teinturier@bct.aphp.fr

Press Contact

Juliette Hardy

presse@inserm.fr