

about the myths concerning cancer. Cancer should not be taken as untreatable.

Chemoprevention, Vaccination

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4HPR: a new prevention trial in high risk women. Rationale, design and implementation

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Retinoids have been studied as chemopreventive compounds because of their role in regulating cell growth, differentiation and apoptosis in preclinical models. Induction of apoptosis is a unique feature of fenretinide (4-hydroxyphenylshy;retinamide, 4-HPR) the most studied retinoid in clinical trials of breast cancer (BC) prevention for its selective accumulation in the breast tissue and its low toxicity. Fenretinide is effective in inhibiting the growth of BRCA-1 mutated BC cell lines. Recent studies showed that it modulates gene expression in ovarian cells, with an up-regulation of expression of proapoptotic genes in OVCA433 cells and down-regulation of mutant BRCA genes in IOSE (pre-malignant) cells and OVCA433 cells.

The fifteen-year follow up of a randomized phase III trial of fenretinide to prevent second BC indicates that it induced a 17%, durable reduction of second BC incidence. When stratified by menopausal status, the analysis showed a 38%, statistically significant reduction of second BC in premenopausal women and this effect persisted for up to 15 years, i.e. 10 years after treatment cessation. Importantly, the younger were the women (≤ 40 years), the greater was the trend of benefit of fenretinide. When considering the protective activity of fenretinide on second BC and a similar trend on ovarian cancer (OC) it appears that young women at high risk for both diseases such as carriers of gemiline BRCA-1 and BRCA-2 mutations or those with a high family risk may be ideal candidates for further investigation on this retinoid. Since a reduction of second BC might be a surrogate marker of primary prevention, a favourable effect of fenretinide provides strong rationale for a primary prevention trial in unaffected women at high risk for BC.

Based on all the above considerations the European Institute of Oncology (Milan, Italy) has promoted a multi-centric (15 centres) randomized phase III placebo-controlled study with fenretinide in healthy young women. 758 healthy women, 25–44 years old at increased BC risk (BRCA-1/2 mutation or at risk of mutation $\geq 20\%$, based on BRCAPRO program), will be randomized to 4-HPR 200 mg/day versus placebo for 5 years followed by a ten years follow up period. The aim of the trial is to assess the efficacy of fenretinide in reducing the incidence of invasive BC and ductal intraepithelial neoplasia (DIN). Secondary endpoints are the incidence of non-invasive breast disorders, OC, other cancers and various biomarkers of risk.

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Breast cancer prevention with calcium and vitamin D

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Background: Although some observational studies have associated higher calcium intake and especially higher vitamin D intake and 25-hydroxyvitamin D levels with lower breast cancer risk, no randomized trial has evaluated these relationships.

Methods: Postmenopausal women (N=25,282) who were enrolled in a Women's Health Initiative clinical trial were

randomly assigned to 1000mg of elemental calcium with 400IU of vitamin D3 daily or placebo for a mean of 6.0 years to determine the effects of supplement use on incidence of hip fracture. Mammograms and breast exams were serially conducted. Invasive breast cancer was a secondary outcome. Baseline serum 25-hydroxyvitamin D levels were assessed in a nested case-control study of 640 case patients and 640 control subjects. A Cox proportional hazards model was used to estimate the risk of breast cancer associated with random assignment to calcium with vitamin D3. Associations between 25-hydroxyvitamin D serum levels and total vitamin D intake, body mass index (BMI), recreational physical activity, and breast cancer risks were evaluated using logistic regression models. Statistical tests were two-sided.

Results: Invasive breast cancer incidence was similar in the two groups (398 supplement vs 410 placebo; hazard ratio = 0.96; 95% confidence interval = 0.84–1.02). In the nested case-control study, no effect of supplement group assignment on breast cancer risk was seen. Baseline 25-hydroxyvitamin D levels were modestly correlated with total vitamin D intake (diet and supplements) ($r=0.18$, $P<0.001$) and were higher among women with lower BMI and higher recreational physical activity (both $P<0.001$). Baseline 25-hydroxyvitamin D levels were not associated with breast cancer risk in analyses that were adjusted for BMI and physical activity ($P_{\text{trend}}=0.20$).

Conclusions: Calcium and vitamin D supplementation did not reduce invasive breast cancer incidence in post-menopausal women. In addition, 25-hydroxyvitamin D levels were not associated with subsequent breast cancer risk. These findings do not support a relationship between total vitamin D intake and 25-hydroxyvitamin D levels with breast cancer risk.

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Knowledge and attitudes about prevention of cervical cancer by human papilloma virus vaccine (HPV) or pap smears: a cross-sectional survey in France

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Introduction: The commercialisation of two vaccines which focus on the main types of human papilloma virus (HPV) has the potential to reduce approximately 70% of all cervical cancers. As these vaccines do not provide 100% protection, screening for cervical cancer needs to continue for many years. Yet little is known about knowledge and attitudes about HPV vaccine and prevention of cervical cancer in general population and particularly young women. The aim of this study was to measure information on attitudes about HPV vaccination as well as knowledge of HPV and other risk factors of cervical cancer and methods of screening for cervical cancers.

Method: 306 participants aged 14–77 years of age, in July 2008 were recruited from the unit for prevention of infectious diseases (AIDS, tuberculosis, ...) of the University Hospital of Amiens in France. They completed a self-administered questionnaire covering demographics, knowledge and attitudes about cervical cancer, pap-smears and HPV vaccination, the perceived risk for contracting HPV infection and/or for developing cervical cancer and the perceived benefits of a vaccination to prevent cervical cancer.

Results: The sex-ratio of the participants was 0.76. The mean age was 34.9 years and 81% were born in France. Thirty-six percent of the population was students and 44% were married. Sixty-six percent agreed that a pap-smear could detect cervical carcinoma. Eighty-three percent of women had undergone at least one pap-test in their life and 60% in