



PATHWAYS

A Study of Breast Cancer Survivorship

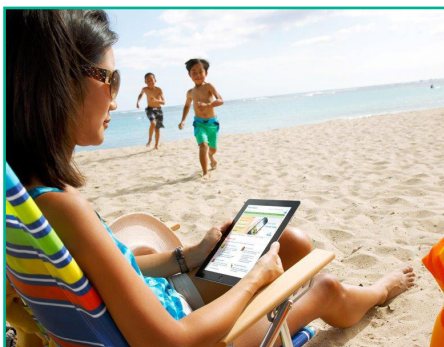
A NEWSLETTER FOR STUDY PARTICIPANTS

Spring 2014

Bone health in breast cancer patients on aromatase inhibitors

Marilyn Kwan, Ph.D., Pathways Study Co-Investigator

Aromatase inhibitors are a common hormonal therapy given after breast cancer treatment for hormone receptor-positive (type of cancer that needs estrogen to grow) breast cancer in postmenopausal women. Aromatase inhibitor drugs include Arimidex®, Aromasin®, and Femara®. While aromatase inhibitors are extremely effective in improving a woman's prognosis after breast cancer, they are known to negatively affect a woman's bone health by potentially increasing risk of osteoporosis and fracture. However, risk factors for fracture in postmenopausal women on aromatase inhibitors have not been well studied.



To fill in this important gap in research for breast cancer survivors, we are currently studying how lifestyle (physical activity, diet, vitamin D and calcium

supplements, smoking, alcohol intake), genetic (estrogen and bone metabolism), and molecular (bone metabolism, inflammation, vitamin D) factors might influence osteoporosis and fracture risk among aromatase inhibitor users in the Pathways women. In addition, we plan to develop a model for predicting risk of fractures for newly diagnosed postmenopausal breast cancer patients who are eligible to take aromatase inhibitors. This study is funded by the National Cancer Institute, and the Principal Investigators are Marilyn Kwan, Ph.D. at Kaiser Permanente Northern California and Song Yao, Ph.D. at Roswell Park Cancer Institute in Buffalo, NY.

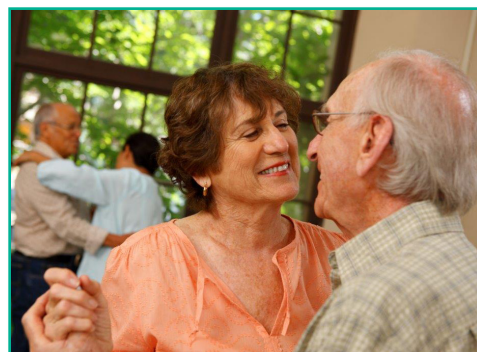
As part of this bone health study, we recently conducted an analysis from participants to describe previous history of osteoporosis and fracture before breast cancer diagnosis among aromatase inhibitor users compared with tamoxifen users. Tamoxifen is another

type of hormonal therapy that can be prescribed to breast cancer patients diagnosed with hormone receptor-positive breast cancer.

The study looked at a total of 3280 Pathways women who were treated with an aromatase inhibitor or tamoxifen for their breast cancer diagnosis. We examined the link between lifestyle and clinical factors at breast cancer diagnosis with previous history of 1) osteoporosis, 2) any fracture (excluding head, face, fingers, toes), and 3) any major fracture (hip, spine, humerus, wrist).

We found that compared with tamoxifen users (35%), aromatase inhibitor users (65%) were more likely to be older (64.5 years vs. 50.5 years) and obese (38% vs. 26%), yet less likely to have had chemotherapy (36% vs. 51%). Aromatase inhibitor users were also more likely to have a previous history of osteoporosis and fracture. Among aromatase inhibitor users, being 70 years or older and Asian were each associated with previous osteoporosis, whereas being African American and larger body mass index was associated with lower rates. Being Asian and having light alcohol intake were related to lower chances of having a history of any fracture.

This analysis is one of the first to characterize aromatase inhibitor users and risk factors for bone health problems before breast cancer diagnosis. These findings were presented at the American Association for Cancer Research Annual Meeting in San Diego, CA in April 2014. ☒



Pathways Update: Who is Participating?

BASELINE INTERVIEW
4,505 completed

6 MONTH FOLLOW-UP
4,346 completed

12 MONTH FOLLOW-UP
4,270 completed

24 MONTH FOLLOW-UP
3,811 completed

48 MONTH FOLLOW-UP
2,216 completed

72 MONTH FOLLOW-UP
1,543 completed

96 MONTH FOLLOW-UP
213 completed

We are grateful for your role in the Pathways Study. All of you add meaning and diversity to our team, and contribute your unique perspective to the information we are gathering. Thank you for participating! ☒

**For the most up to date information
on the Pathways Study,
please visit our website:**

<http://pathways.kaiser.org> ☒

New Contact Information?

In order to keep in touch with you we must have your latest contact information. Please let us know if your phone number or home address has changed. You can reach us by calling our toll-free number:

1-866-206-2979. ☒

PATHWAYS STAFF

Jean Lee



Jean Lee has been with the Pathways Study since early 2013. She has worked on many other cancer-related studies at our Division of Research since the mid 1990's. Jean is a medical records analyst, and among other things her role is to double check the medical data to make sure we are working with the most accurate information. Jean enjoys staying fit, walking around nearby Lake Merritt during lunchtime, and practicing Bikram yoga and the Bar Method. Jean also loves to travel, especially internationally, and has been hiking in Nepal and on the Inca Trail in Peru. Recently she went to Costa Rica, Southeast Asia, Egypt and Jordan. She is planning an African Safari this coming June. We enjoy hearing Jean's travel stories! ☒

Pilot Blood Draw

We invited 200 of you who are 4-5 years post-diagnosis and who provided a baseline blood sample to participate in a pilot study to collect a follow-up blood sample. We are interested in the participation rate and the success of the blood draw process. This pilot will help inform us about the possibility of obtaining additional follow-up blood samples from study participants, which we plan to propose in the Pathways Study renewal grant application. We would like to collect a second blood sample as it enables us to look at changes in biological markers over time. One of the overall aims of the Pathways Study is to examine genetic and molecular factors to see if there are any changes that may impact breast cancer prognosis. Depending on what we find, this information may be used to develop more effective ways of treating certain breast cancer patient groups.

For those of you that have agreed to participate in our Pilot Follow-Up Blood Draw, we appreciate your continued participation and your willingness to volunteer in this very important research! ☒



PATHWAYS COLLABORATOR

Christine Ambrosone, PhD

From the time that my late husband was diagnosed with cancer when he was 32 years old, and underwent chemotherapy and then a bone marrow transplant that resulted in many side effects, I have been driven to learn how we can figure out who will benefit from certain treatments for cancer and who will not.



Many people are 'allergic' to certain drugs – for example, I get really nauseous and dizzy if I take anything with codeine in it for pain. This isn't really an allergy, but our bodies handling drugs differently. Very common variations in genes that metabolize any number of drugs will result in some people getting more active drug throughout their system – in a sense,



higher doses – while for others, their bodies may quickly get rid of the drug and it may be less effective. If we can learn how

individual genetic profiles will predict how people's bodies will handle different chemotherapy drugs, we can individualize cancer therapy to treat each cancer more efficiently and also spare people side effects from drugs that may not be effective against their tumors. I have also been interested in the use of supplements, as well as diet, during treatment for cancer, and if it has any impact on side effects or overall health.

My research has focused primarily on breast cancer – the causes of it and how it will affect people once they have it. Because of these interests, I have been thrilled to work with Dr. Kushi on the Pathways Study, to better understand how lifestyle, biology and genetics may affect breast cancer outcomes. Blood samples from Pathways are shipped to our laboratory where they are processed and banked for later use, and many of the assays are performed in our laboratories. In my academic life, as a Professor of Oncology, I am Chair of the Department of Cancer Prevention and Control at Roswell Park Cancer Institute (Buffalo,

NY), with most of my funded research now trying to understand the causes of more aggressive breast cancer in African-American women. I have been on a number of national committees, and was a participant in the congressionally mandated panel on Breast Cancer and the Environment, along with Janice Barlow, Executive Director of Zero Breast Cancer in Marin County, CA.

Outside of work, we enjoy living in a rural community, and I spend much of my time working in our vegetable gardens, tending our chickens and dogs, and enjoying being in the kitchen cooking up nature's bounty. ☒



New Science, New Activism, New Opportunities

Save the Date

Breast Cancer and the Environment
Research Programs
2014 Annual Conference

Please join us to learn about the latest results of the BCERP laboratory and epidemiological studies investigating the influence of environmental exposures over the lifespan that may predispose a woman to breast cancer and how this work is being translated into communities. We will also explore future directions for these programs and research areas.

Save the Date

**Thursday and Friday,
November 20-21, 2014**

Hyatt Regency – Embarcadero,
San Francisco, CA

To register or for more information:
www.bcerp.org/2014mtg/





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