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CaMos
Canadian Multicentre Osteoporosis Study
Étude Canadienne multicentrique sur l'ostéoporose

Best Wishes for the New Year from the CaMos Team!

ISSUE NO. 8 JANUARY 2004

Editorial

***DR. NANCY KREIGER,** CO-PRINCIPAL INVESTIGATOR, TORONTO*

It's hard to believe that another year has gone by! We'd like to tell you what we've been doing since last year, and to emphasize how much we appreciate your commitment to making CaMos the world-class study it is.

As you know, we have continued to collect information from you, to track the changes in your health and to review all of the data we have from the last six years. This enables us to understand some of the reasons for these changes. We continue to have excellent support from the pharmaceutical industry, and of course from each of you, as you make time in your busy schedules to keep us informed of how and where you are.

Here are a few of the things we've learned from the information you have provided. The data collected at your first interview were used to determine the age at which bone mass is at its highest. This occurs before the age of 25, which is younger than was previously thought. We determined that 16% of women and 7% of men 50 years of age and older are affected with osteoporosis. Using your spinal x-rays, we determined that at least 10% of both men and women over the age of 50 had fractures in their spine.

Currently, we're working on a number of new questions, including: establishing the percentage of Canadian men and women who have osteoporosis in the different regions of the country; looking for factors that may predict the occurrence of a new fracture; and estimating the intake of calcium and vitamin D in Canadians.

Our plans for the future have taken an exciting turn. In addition to continuing our contact with you, we will be seeking younger participants to become part of the study, due to our discovery that bone mass peaks at an earlier age. By involving young men and women in their teens and early twenties, we will be able to see what that age really is. With this information, we will have a better chance of developing appropriate prevention programs to eliminate the decline in bone.

We continue to be very grateful for your participation and interest. Your response to these newsletters in particular has been very positive, and we're happy to hear from you at any time, with your questions and comments. ◆

Regional News

MONTREAL CONGRATULATIONS!

Dr. Alan Tenenhouse, CaMos Co-Principal Investigator, was awarded the Lindy Fraser Award at the Osteoporosis Society of Canada's annual meeting held in Halifax in June 2003. This award is for recognition of contribution to osteoporosis education and research.

CALGARY CONGRATULATIONS!

Dr. David Hanley, Calgary's CaMos Centre Director, is the first recipient of the Osteoporosis Society of Canada's "Volunteer of Distinction Award". This award recognizes significant achievements and contributions on both provincial and national levels, for exceptional leadership within the organization, amongst his peers and for his years of volunteer service that extend over the past 20 years. ◆

CaMos Findings

DR. ALAN TENENHOUSE
CO-PRINCIPAL INVESTIGATOR, MONTREAL

The following table describes some of the findings we have learned from the CaMos data so far. These findings have been published. For more details, visit the CaMos web site at www.camos.org Transforming data that have been collected from you into published articles is a lengthy and complex process involving data cleaning, analyzing and writing. This work is ongoing. ◆

TOPIC	WHAT WE HAVE LEARNED
Bone Mineral Density: Peak Bone Mass	In Canadian men and women, peak bone mass (when bone mass is at its highest) was found to be occurring at an earlier age than previously thought
Bone Mineral Density: Prevalence of Low Bone Density in Canadian Women and Men	Using the CaMos bone density data as a reference, the prevalence (percentage of the population affected by osteoporosis at study entry) of osteoporosis in women 50 years and older was found to be 16%. In men 50 years of age and over, it was found to be 7%.
Bone Mineral Density and Use of Oral Contraceptive	CaMos data suggests that in women 25-45 years old, oral contraceptive use is associated with lower bone mineral density.
Bone Mineral Density and other diseases	CaMos data suggests that kidney stones may be associated with lower bone mineral density in men 50 years of age and older.
Spinal Fractures	Using the spinal x-rays and a technique to measure the external shape of vertebrae, it was determined that more than 10% of men and women over the age of 50 had fractures in their spine.
Quality of Life: Standards (Norms) for the SF-36 Survey[1]	The CaMos data collected from more than 9000 people, presented a unique and valuable opportunity to develop Canadian standards for the SF-36[1] quality of life measurement. These standards are now widely used in research across Canada.
Quality of Life: Regional Variations in the SF 36[1] Survey	The SF-36[1] data from the nine CaMos centres were examined to see if there were differences in the results by region. There were no large differences, which is good news, since it means that the overall standards can be used across Canada and it is not necessary to develop region-specific standards.
Quality of Life and Prevalent[2] Fractures	We discovered a negative impact on quality of life, in those who had suffered a fracture in the past, particularly in the current ability to move around. This impact was also evident in those who had spinal fractures that were previously undetected.
Vitamin D	A study of 188 men and women in the Calgary CaMos group showed that mild Vitamin D deficiency is very common in Calgary, particularly in the winter. Since Calgary gets more sunshine than any other Canadian city, it is likely these results apply to all Canadians.

[1]Questionnaire related to your health that you answered at your first interview
[2]Fractures occurred before being recruited to the study

Questions and Answers

Welcome to the first Questions and Answers column. Three centre directors/co-directors, highly experienced in the field of osteoporosis have answered three of your questions. We will address another set of questions in the next issue.

WHAT IS THE DIFFERENCE BETWEEN OSTEOPOROSIS AND ARTHRITIS?

Dr. Tassos Anastassiades
Director, Kingston

Arthritis generally refers to afflictions of the joints. There are two common general types that can become long-standing (chronic arthritis). The main symptoms of chronic arthritis are pain or stiffness in the joints and joint swelling.

The most common type is osteoarthritis, also known as degenerative joint disease. Generally, in osteoarthritis, the cartilage of the joint is lost and more bone forms at the edges of the affected joints, potentially nature's way to repair the damage. This results in joint enlargement, such as the very common swelling seen in the hands.

The second type is called inflammatory, for example rheumatoid arthritis. Rheumatoid arthritis is less common than osteoarthritis, but it can be very disabling.

Osteoporosis, which means excessive thinning of the bones, usually causes no symptoms of its own, but pre-disposes people to bone fractures. Spinal fractures are mostly painless but can cause one to lose height and develop a rounded back. Once a spinal fracture has occurred subsequent spinal fractures are more likely to follow.

Because both osteoporosis and osteoarthritis are common problems, they can often occur in the same individual. In the spine, this can result in under-estimating the degree of osteoporosis, because of the extra bone formation around the spine joints. This is usually noted in the bone density report.

Rheumatoid arthritis can also affect osteoporosis, but in a different way than osteoarthritis. People suffering from rheumatoid arthritis tend to be less mobile and may be taking medications that can thin bones, especially cortisone, and are more prone to develop osteoporosis.

Thus, osteoporosis and arthritis are quite different problems, requiring different treatments, but having arthritis can affect osteoporosis.

IS IT EVER TOO LATE TO TAKE ACTION TO PREVENT BONE LOSS?

Dr. Robert Josse
Co-Director, Toronto

Bone is an interesting and active tissue that breaks down and builds up again throughout life. This is the mechanism by which we repair old and damaged bone. When there is an imbalance in this process, favouring increased breakdown (called resorption), osteoporosis occurs. This bone loss is seen particularly in later life and causes increased bone fragility and risk of fracture. Most of the treatments that are available use drugs that decrease bone breakdown and bone loss. Moreover, they help to maintain and even improve skeletal strength and thus reduce the risk of fractures. Bone density may increase to a greater or lesser extent with different anti-resorptive drugs. What is most important, however, is that it does not decrease. These drugs have been studied very carefully in clinical trials before being released on the market. The studies have included people with osteoporosis mostly beyond the age of 50. They have shown that it is never too late to start treatment to help prevent the first fragility fracture and especially to decrease the risk for new fractures if one has already had one. It is important to take measures to ensure good bone health throughout life. In addition, if one is at risk for osteoporosis or already has it, one should seek advice and take appropriate therapy. With effective treatment, it is never too late to prevent bone loss and thereby help to reduce the pain and disability associated with fractures.

IS OSTEOPOROSIS A HEREDITARY DISEASE?

Dr. David Hanley
Director, Calgary

It is well recognized that osteoporosis is more common in families of people who have had a typical osteoporosis-related fracture. For example, if your mother had a hip fracture, you are about twice as likely to suffer from a fracture than if your mother did not fracture. Studies have estimated that we inherit about 75% of our bone density.

The complete human genetic code of about 30,000-35,000 genes has recently been mapped. Variations in each of these genes account for the presence or absence of many diseases. Although heredity plays an important role in osteoporosis, to date there is no single gene abnormality that can be called the cause of osteoporosis. However, osteoporosis is probably associated with variations of genes that ▶

► regulate bone and calcium metabolism.

Some CaMOS centres have collected blood cells from participants in order to examine genes which may help to predict osteoporosis. Investigators will look at genes associated with vitamin D, and some of the proteins important in building strong bone, to see if they are associated with low bone density or fractures. If genes associated with osteoporosis can be identified, this will advance our understanding of how osteoporosis develops, thus leading to more effective treatments specific to inherited bone abnormality. ◆

If you have questions you would like answered in upcoming issues, please send them to us either by mail:

CaMos
1650 Cedar Ave. Room D13-157
Montreal, Quebec, H3G 1A4

or by e-mail to: info@camos.org

Behind the scenes

In this issue we continue the journey of transforming your questionnaire information into research data. You may recall in the last newsletter, you were introduced to the coordinating centre, where management and questionnaire data processing take place. The methods centre, also located in Montreal, works in close partnership with the coordinating centre. Once questionnaire data from the nine centres have been entered into the data base and verified by the coordinating centre, the data are transferred to Claudie Berger from the methods centre for statistical analysis. Claudie is a statistician who has been working with CaMos since 1996. Her primary roles are to decide which statistical analyses are required to answer the medical and clinical questions that form the objectives of CaMos, and then to carry out the analysis plan and report on the results. She is also responsible for making the data available to other CaMos researchers and she participates in the data quality control for the bone densities and x-rays. She works in collaboration with Lawrence Joseph, co-investigator and principal statistician for the study.

Claudie Berger and Lawrence Joseph

Lawrence has been working with CaMos since the early planning stages in 1993. He works in collaboration with Claudie in establishing statistical analyses plans and helps in the writing of medical research articles that report results from the study. As is the case for all co-investigators, he participates in the various decision making processes required for the project, and supervises students who use CaMos data for their studies in graduate school. ◆

Your Regional Centre

Calgary, AB
(403) 220-8236
Halifax, NS
(902) 473-5725
Hamilton, ON
(905) 522-1155
x 8608
Kingston, ON
(613) 533-6027
Québec, QC
(418) 525-4444
x 47526
Saskatoon, SK
(306) 933-2663
St-John's, NFLD
(709) 777-6270
Toronto, ON
(416) 864-5391
Vancouver, BC (604)
875-5928

CaMos Web Site

www.camos.org

Editorial Team

Barbara Gardner-Bray,
Suzanne Godmaire,
Barbara Matthews,
Suzette Poliquin.