Medical Xpress

Osteoporosis study looks at bone architecture to determine fracture risk

November 23 2012

(Medical Xpress)—Researchers at the University of Calgary are hoping to help people with osteoporosis by predicting which patients are more likely to fracture their bones. Having this information would better allow doctors to decide which patients may need pharmaceutical or lifestyle interventions.

Using a high resolution computed tomography (micro-CT) scanner to analyze the architecture of the bone, scientists scanned the wrists of 44 women with a history of low-trauma fracture and 88 age-matched control subjects that did not have low-trauma fracture. Based on the results, researchers demonstrated that the machine could identify bone micro-architecture, density and strength information and therefore be a useful prediction tool.

"Currently, it's hard to determine who needs a medical intervention for osteoporosis. This new assessment tool may provide us with information to help us make better decisions," says study author Steven Boyd, PhD, from the University of Calgary, and the inaugural Bob and Nola Rintoul Chair in Bone and Joint Research.

His work focuses on using new imaging technologies to develop methods for better diagnosis and monitoring of diseases like osteoporosis and osteoarthritis.

In Alberta, nearly one million people suffer from bone and joint health issues, including Bob and Nola Rintoul. The Rintouls both live with

osteoarthritis, a form of arthritis that causes the deterioration of cartilage around bones, resulting in pain and inflammation. They have chosen to support research at the University of Calgary through a $1.3-million donation to establish the chair Boyd now holds.

"Nola and I are extremely pleased that Steven Boyd has been named to our research chair. We have had firsthand experience with bone and joint issues and know how important research is to improving clinical treatment and outcomes," says Bob Rintoul.

Osteoporosis is one of several bone and joint disorders currently being studied by Boyd and his research team.

According to Osteoporosis Canada, osteoporosis is a disease characterized by low bone mass and deterioration of bone tissue. This leads to increased bone fragility and risk of fracture (broken bones), particularly of the hip, spine, wrist and shoulder.

"Steven Boyd is an outstanding young investigator whose pioneering work in this field has allowed us to assess a patient's bone strength without having to undergo a more invasive procedure like a bone biopsy," says Dr. David Hanley from the University of Calgary's McCaig Institute for Bone and Joint Health, and study author.

"We'd like to thank the Calgary participants in the Canadian multicentre osteoporosis study who volunteered for this project and help make this research possible."

Boyd and Hanley, along with Boyd's recently graduated student Kyle Nishiyama, PhD, and colleague Dr. Heather Macdonald from the University of British Columbia, published the research this week.

The study was published in the November online edition of Osteoporosis

International. It was funded by the Canadian Institutes of Health Research (CIHR).

Provided by University of Calgary