Broken bones and medication

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Although one in four women over 50 develops osteoporosis, most are unaware they have the disease — something Professor Suzanne Cadarette would like to change.

“People are walking around with fragile bones and not realizing they need treatment until they break something,” said Cadarette, an expert in health services research and pharmacoepidemiology with the Leslie Dan Faculty of Pharmacy.

“And even if they break something they still may not attribute it to low bone mass. They may think that they’re clumsy.”

Cadarette and her team of researchers study the safety and effectiveness of drugs once they’re on the market and conduct research to better

understand the patterns of drug prescribing and use.

“One of our challenges is how to improve patient understanding of their underlying bone quality and the importance of medication,” Cadarette said, “and also the importance of adhering to pharmacotherapy to prevent fractures.”

Osteoporosis also strikes one in eight men over the age of 50 and the annual cost of treating osteoporosis and the fractures it causes is estimated at more than $1.3 billion.

Although her work in research methodology could be applied to other illnesses, Cadarette had a personal motivation to begin with osteoporosis — her grandmother battled the condition while Cadarette was an undergraduate student, before the current osteoporosis medications were available.

“I witnessed the crippling consequences of untreated osteoporosis through my grandmother’s experience,” said Cadarette. “By the end of her life she was quite disfigured with kyphosis — a consequence of several vertebral fractures.

“I would visit my family in the Windsor area every few months and would literally be able to see the progression of my grandmother’s vertebral deformities and how it impacted her quality of life — she was a happy, active person but she was also clearly and visibly in pain.”

The class of drugs known as bisphosphonates came to market in the mid-1990s. Proven effective at increasing bone density and preventing fractures, they are first-line therapy for treating osteoporosis. However, the drug regimen isn’t easy to follow — patients must take pills with a full glass of water upon waking and remain standing or seated for at least half an hour

afterwards, without eating.

“We definitely know that bisphosphonates work but one of the challenges is getting people to adhere to them,” said Cadarette. “Between one-third and one-half stop taking bisphosphonates within one year but what we’re finding — and there’s a growing body of literature saying — is that most of the people who stop will come back at some point in time.

“So the good news is that people are coming back to the drug; the bad news is that they’re coming back after something bad happens, like another fracture.”

Fortunately, newer treatments with less frequent dosing schedules are now available, said Cadarette, including the first biological agent approved recently by Health Canada and administered by subcutaneous injection every six months.

“Therefore unlike my grandmother’s experience in the early 1990s, men and women today have many options when it comes to treating osteoporosis and preventing fractures.”

Over the next few years, Cadarette expects to learn a lot more about the safety and effectiveness of osteoporosis treatments, as well as factors that affect patients’ adherence to therapy. Researchers are already learning that bisphosphonates remain in bone longer than originally expected — a fact that may affect future therapy, Cadarette said.

“There is evidence emerging that after several years of continuous treatment, it may be OK to take a physician-directed holiday from bisphosphonate therapy and it actually might be a good idea,” she said. “However, further research is needed and we are working on that.”