

Researcher eyes kidney patient fracture risks

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Epidemiology & Biostatistics PhD student Kyla Naylor will use her recently awarded Canadian Institute of Health Research Fellowship to get a better understanding of higher fracture rates for individuals with chronic kidney disease. Credit: Paul Mayne

As if kidney disease wasn't bad enough on its own.

U.S. studies have confirmed [bone](#) fracture risks are significantly higher for [kidney transplant patients](#) due to diminished [bone mass](#) early in the course of [kidney disease](#), which worsens with the progressive decline in

[renal function](#).

"The kidneys play an important role in making sure our bones are healthy. The gold-standard treatment for individuals with severe declines in [kidney function](#) is [kidney transplantation](#)," said Epidemiology & Biostatistics PhD student Kyla Naylor. "We know a lot about fracture in the general population, but we know less about fracture risk in kidney transplant recipients."

As the recipient of a recent Canadian Institutes of Health Research (CIHR) Fellowship, Naylor will receive \$45,000 over the next year to clarify bone fracture risk in kidney transplant recipients, and then use those findings to inform future treatments.

Her study will look at 5,000 adult kidney transplant recipients, using Ontario health records from 1994-2009.

"This study will help us understand the burden of fracture in kidney transplant recipients, risk factors for fracture in recipients, and trends in fracture over time," said Naylor, who explained no numbers exist for Canadian patients.

There are multiple factors at play with individuals dealing with kidney disease. Declining organ function brings a loss in the production of Vitamin D, which affects calcium and phosphorus levels, and the protein fibroblast growth factor 23, which has adverse affects on bone density.

"Patients are also given a large dose of steroids after transplantation, which also has adverse affects," Naylor said. "Also, there have been a lot of changes to the immunosuppression protocol in recipients, with a trend toward decreasing steroids. So, we might think estimates are lower than previously thought. On the flip side, recipients are now older and may have more core morbidities, which are factors to look at as well."

Co-authored by Naylor, a recent paper, which appeared last month in the journal Transplantation, showed transplant recipients may be more likely to fracture compared to the general population, with female recipients, aged 45-64, experiencing a 34 times higher fracture risk.

An accurate way to identify kidney transplant recipients at a high-fracture risk is currently unknown. Naylor stressed that missing piece is crucial.

"One of the main reasons we want to quantify these numbers is the general population have been successful at reducing fracture rates, but not in recipients, so this is fracture prevention therapy," she said. "Once we get a sense of the fracture rate we can hopefully determine what factors make these individuals at a high risk for fracture."

Provided by University of Western Ontario

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