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First Nations adults have more than double the risk of end-stage kidney disease

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First Nations adults with diabetes have more than double the risk of end-stage kidney disease compared with non–First Nations adults, found a new study in *CMAJ* (*Canadian Medical Association Journal*).

Diabetes and high blood pressure are common causes of kidney disease, which can result in end-stage renal disease after years of slow decline in kidney function.

To understand the high rates of end-stage renal disease in First Nations people, researchers looked at all cases of diabetes over 25 years (from 1980 to 2005) in the Canadian province of Saskatchewan. There were 8254 First Nations patients with diabetes whose mean age at diagnosis was 47.2 years; in non–First Nations adults (82 175 people), diabetes was diagnosed at a much older age, with a mean age of 61.6 years. More than 82% of First Nations people had diabetes before age 60, whereas most non–First Nations (56%) were over age 60.

"Because they are younger than non–First Nations individuals when diabetes first develops, First Nations individuals are more likely to survive long enough for end-stage renal disease to occur, presumably because of lower cardiovascular mortality," writes Dr. Roland Dyck, a professor with the departments of Community Health and Epidemiology, and Medicine, University of Saskatchewan, with coauthors.

End-stage renal disease occurred in 2.4% (200) of First Nations people, and 18% (1482) died without end-stage renal disease. In comparison,

only 0.7% of non–First Nations people had end-stage renal disease, and 34.6% (28 450) died from other diabetes-related complications. Men were 50% more likely than women to have end-stage renal disease.

"The implications of our findings are sobering," write the authors. "Among First Nations adults, type 2 diabetes is increasingly occurring during younger decades of life. Among First Nations children, the prevalence of diabetes tripled between 1980 and 2005, and the offspring of these individuals are in turn experiencing an even higher risk of childhood type 2 diabetes. …Without substantial improvements in the prevention and treatment of this disease, this pattern will likely translate into increasing numbers of First Nations people with diabetes-related end-stage renal disease and possibly other chronic diabetic complications."

The authors recommend focusing on prevention strategies to reduce the number of new cases of diabetes and to help delay the onset of diabetes.

"For clinicians and administrators, [the] data indicate that the risk of renal disease increases progressively with increasing age. With the onset of diabetes at a younger age among First Nations people, end-stage renal disease is thus a common outcome," writes Dr. Stephen McDonald, School of Medicine, University of Adelaide, Australia, in a linked commentary. "The challenge is not only to provide effective renal replacement therapy, but also to implement more effective primary prevention initiatives to delay the onset of diabetes and the progression of chronic kidney disease."

In a related paper in *CMAJ*, Alberta researchers found that rates of kidney disease are two to three times higher in First Nations people than in non–First Nations people. However, the association of albuminuria—the secretion of the protein albumin in urine, which indicates kidney problems—is similar in both First Nations and

non–First Nations people.

"Despite as higher prevalence of heavy albuminuria among First Nations people, we did not find that the presence or severity of albuminuria conferred an additional risk to the development of kidney failure," writes Dr. Brenda Hemmelgarn, Department of Community Health Sciences, University of Calgary, with coauthors. "Even among participants with no measure of albuminuria, risk of progression to kidney failure was similarly elevated for First Nations compared with non–First Nations participants within each category of estimated GFR [glomerular filtration rate]."

More information: Research paper: www.cmaj.ca/lookup/doi/10.1503/cmaj.130721
Commentary: www.cmaj.ca/lookup/doi/10.1503/cmaj.131605
Related paper: www.cmaj.ca/lookup/doi/10.1503/cmaj.130776

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