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High Burden of Chronic Kidney Disease in Young Adults with Type 1 Diabetes

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Background: Type 1 diabetes (T1D) increases the risk of chronic kidney disease (CKD). We sought to assess the burden of CKD and albuminuria, and risk factors contributing to CKD development. **Methods:** This retrospective cohort study (1996-2020) involved Canadian adults diagnosed with T1D before 30 years of age, followed in a sub-speciality clinic in British Columbia. CKD was defined as an estimated GFR <60 ml/min/1.73 m² and persistent albuminuria was defined as a urine albumin-to-creatinine ratio (ACR) ≥ 2 mg/mmol (≥ 2 measurements over 6 months). Logistic regression was used to describe the relationship between CKD and diabetes-related risk factors. **Results:** Of the 268 adults followed in the clinic, 63.4% were male, and the median age at diagnosis of T1D was 13.7 years (IQR 11.9 years). Over a median duration of T1D of 27.1 years (IQR 21.2 years), 8.2% of the adults developed CKD and 32.5% developed albuminuria (19.8% ACR 2-20 mg/mmol, 12.7% ≥ 20 mg/mmol). Five adults went on to develop end-stage renal disease within the follow-up period. A longer duration of T1D (≥ 30 years) was associated with 4-fold increase in the odds of developing CKD (odds ratio 4.09, 95% CI 1.37-15.10). History of medical and psychiatric comorbidities, A1C $\geq 7\%$, systolic blood pressure ≥ 130 mmHg, and ACR ≥ 2 mg/mmol were also associated with greater odds of developing CKD. **Conclusion:** In this contemporary Canadian cohort of young adults with T1D, CKD and albuminuria are common. Contributing risk factors include comorbid medical and psychiatric conditions, suboptimal glycemic control, systolic hypertension, and albuminuria.

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