

IgA Nephropathy and Risks of Kidney and Cardiovascular Events and Death: The KNIGHT Study



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INTRODUCTION

IgA nephropathy (IgAN) is a form of glomerulonephritis leading to inflammation, kidney fibrosis and end-stage kidney disease (ESKD). However, few population-based data exist from the U.S. about adults with IgAN and risks of kidney, cardiovascular, and mortality outcomes compared with those who have non-IgAN chronic kidney disease (CKD) or those without evidence of CKD.

METHODS

Source Population

Retrospective observational study within Kaiser Permanente Northern California, a large integrated healthcare delivery system currently providing comprehensive medical care for >4.5 million members.

Assembly of IgAN and Comparison Cohorts

- To enhance ascertainment of IgAN, we used validated natural language processing (NLP) algorithms applied to electronic health record data to identify adults with biopsy-proven IgAN between 2010 through 2020.
- Identified separate age-and-sex-matched cohorts of <60 ml/min/1.73m² and adults with non-IgAN CKD (eGFR no evidence of IgAN or other glomerulonephritis) and adults without CKD (eGFR ≥60 ml/min/1.73m² and no proteinuria or diagnosed kidney disease) up to a 10:1 ratio to matched IgAN patients (**Figure 1**).

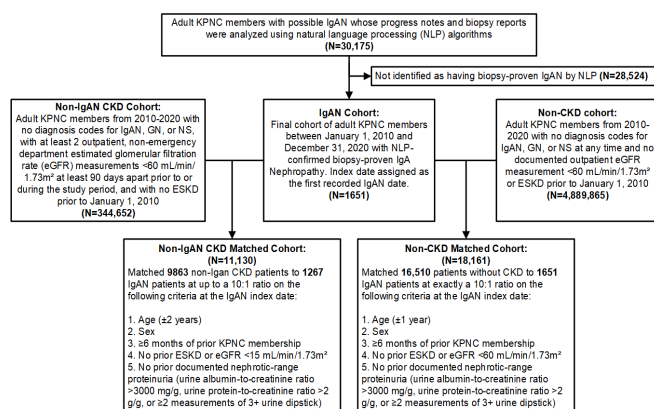


Figure 1. Assembly of cohort of IgA nephropathy (IgAN) and matched cohorts of non-IgAN CKD, and no CKD.

Outcomes

We compared subsequent rates of ESKD (defined as receipt of kidney replacement therapy), worsening CKD (50% reduction in eGFR from baseline, reaching an eGFR <15 mL/min/1.73m², or ESKD), hospitalized acute kidney injury, cardiovascular outcomes (acute myocardial infarction, heart failure, stroke/transient ischemic attack), and death through December 2021 using Cox proportional hazards models adjusted for potential confounders (e.g., demographics, clinical characteristics, laboratory results).

RESULTS

- Among 1651 adults with biopsy-confirmed IgAN, we matched 1267 IgAN members with 9863 adults with non-IgAN CKD and 1651 IgAN members with 16,510 adults and no CKD.
- Compared with matched adults who had non-IgAN CKD, those with IgAN had higher adjusted rates of ESKD (adjusted hazard ratio [aHR]: 2.79, 95% CI: 2.16-3.62), worsening CKD (aHR: 3.05, 95% CI: 2.68-3.46), and hospitalized acute kidney injury (aHR: 1.45, 95% CI: 1.22-1.73) but no significant adjusted differences in cardiovascular events and death after accounting for potential confounders (**Figure 2**).
- Compared with matched adults who did not have CKD, those with IgAN had substantially higher adjusted rates of kidney outcomes as well as higher adjusted rates of hospitalization for heart failure (aHR: 8.06, 95% CI: 2.90-22.37) and death (aHR: 2.90, 95% CI: 2.08-4.02) but not significantly different adjusted rates of acute myocardial infarction or stroke/transient ischemic attack (**Figure 2**).

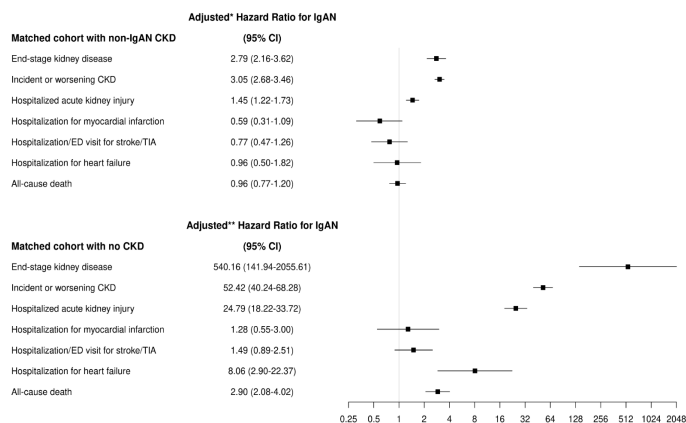


Figure 2. Adjusted hazard ratios for all outcomes in the matched cohorts.

CONCLUSION

Within a large, diverse community-based population in the U.S., adults with IgAN experienced higher adjusted rates of adverse kidney outcomes compared with adults with non-IgAN CKD, as well as higher rates of heart failure and death compared with adults who had no CKD.

