

Acute Kidney Injury, Renal Impairment and Renal Failure Associated with Sodium Glucose Co-transporter-2 Inhibitors in At-Risk Groups: A Systematic Review

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Abstract

Introduction Randomised controlled trials show a reduction in acute kidney injury, renal impairment, and acute renal failure after initiation of a sodium glucose cotransporter-2 inhibitor. Observational literature on the association is conflicting, however important to understand for populations with a higher risk of medication-related adverse renal events. We aimed to systematically review the literature to summarize the association between sodium glucose cotransporter-2 inhibitor use and acute kidney injury, renal impairment, and acute renal failure in three at-risk groups: older people aged >65 years, people with heart failure, and people with reduced renal function. **Methods** **Data Sources:** A systematic search of Embase (1974–29/03/21) and PubMed (1946–29/03/21) was performed. **Study Selection:** RCTs and observational studies were included if they reported numbers of acute kidney injury or acute renal failure in people using sodium glucose cotransporter-2 inhibitors, compared to other diabetic therapies. Studies needed to report results by level of renal function, heart failure status, or age. **Results** Of 858 results, 6 studies were included. The absolute risk of acute kidney injury or acute renal failure was higher in people >65 years compared to those <65 years, higher in people with heart failure (vs. without), and higher in people with reduced kidney function (vs. preserved kidney function), but insufficient evidence to determine if the relative effect of sodium glucose cotransporter-2 inhibitors on this risk was similar for each group. **Conclusion** At risk cohorts are associated with a higher incidence of acute kidney problems in users of sodium glucose cotransporter-2 inhibitors.

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