

TREATMENT EFFECT AND SAFETY OF HIGH FLUID INTAKE FOR THE PREVENTION OF INCIDENT AND RECURRENT KIDNEY STONES: A META-ANALYSIS

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The objectives of this meta-analysis were to evaluate the treatment effect of high fluid intake on the incidence of kidney stones, and to assess the compliance and safety of high fluid intake to prevent kidney stones.

A literature search was performed from inception through July 2014. Studies that reported relative risks, odds ratios or hazard ratios comparing the risk of kidney stones in patients with high fluid intake vs inadequate fluid intake were included. Pooled risk ratios (RR) and 95% confidence intervals (CI) were calculated using a random-effect, generic inverse variance method.

Nine studies (2 randomised controlled trials [RCTs]; 7 observational studies) with 273,954 patients were included in the meta-analysis. The pooled RRs of kidney stones in patients with high-fluid intake were 0.40 (95% CI 0.20–0.79) and 0.49 (0.34–0.71) in RCTs and observational studies, respectively. High fluid intake was also significantly associated with reduced recurrent kidney stone risk, with RRs of 0.40 (95% CI 0.20–0.79) and 0.20 (0.09–0.44) in RCTs and observational studies, respectively. Data on compliance and safety of high fluid intake treatment were limited; 1 RCT reported no withdrawals due to adverse events.

This meta-analysis demonstrated a significantly reduced risk of incident kidney stones among individuals with high fluid consumption. High fluid consumption also reduced the risk of recurrent kidney stones. Furthermore, the magnitude of risk reduction (~0.5 in both cases) was high. Although increased fluid intake appears to be safe, future studies on its safety in patients with high risk of volume overload or hyponatremia are warranted.