

Intravenous sodium thiosulphate for vascular calcification of hemodialysis patients: A systematic review and meta-analysis

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Background: Vascular calcification is a common comorbidity among patients with Chronic Kidney Disease (CKD) indicating major cardiovascular events. This study aimed to evaluate the effects and safety of intravenous Sodium Thio-Sulphate (STS) for vascular calcification in CKD patients.

Methods: Electronic databases were searched for clinical trials that provided data comparing outcomes among patients treated with and without STS. PRISMA guidelines were followed. Efficacy was assessed using calcification scores and arterial stiffness. Safety was examined by analyzing adverse symptoms, electrolytes, and Bone Mineral Density (BMD). Random-effects models were performed. Meta-regression and sensitivity analysis were done. The risk of bias was assessed using Cochrane tools.

Results: Among the 5601 publications, 6 studies involving 305 participants (mean age: 56 years, male: 56.6%) with all participants on maintenance hemodialysis met eligibility criteria. For efficacy, the progression in Agatston scores in the coronary arteries (107 patients, Mean Difference (MD): -241.27,95% CIs:-421.50,-61.03) and iliac arteries (55 patients, MD:-382.00,95% CIs:-751.07,-12.93) was lower in the STS treated group compared with controls. The increase in pulse wave velocity was lower in the STS group (104 patients, MD:-1.29 m/s,95% CIs:-2.24 m/s,-0.34 m/s). No association was found between the change in calcification scores and STS regimen. For safety, gastrointestinal symptoms (e.g. nausea) and increased anion gap acidosis were noted. No reduction in BMD by STS was observed.

Conclusion: Intravenous STS may attenuate the progression of vascular calcification and arterial stiffness in hemodialysis patients. Large and well-designed randomized controlled trials are warranted.

Biography

Wen Wen is a nephrologist in China. She received her medical and clinical training in Peking University Health Science Center, and finished a master degree of medical science in clinical investigation in Harvard Medical School. Her research currently mainly focuses on treatment of CKD-MBD, specifically about vascular calcification and calciphylaxis. She also has special interest on risk factor identification and follow-up of patients with urolithiasis.

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