Heart View

Heart Failure

1 TOLVAPTAN FOR HEART FAILURE, SYSTEMATIC REVIEW AND META-ANALYSIS OF TRIALS

Ebrahim Alskaf*, Ascanio Tridente, Abdallah Al-Mohammad. *Sheffield Teaching Hospitals*;
*Presenting Author

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Context The vasopressin type 2 receptor antagonist tolvaptan (TLV) has become available to treat congestion in patients with heart failure (HF). There is paucity of evidence guiding its use, and lack of evidence of its long term efficacy.

Objectives To perform a systematic review of studies examining tolvaptan effects in patients with HF; and a quantitative meta-analysis comparing primary and secondary outcomes between tolvaptan alone, or as an add-on therapy.

Data sources English or non English studies published with no time restriction.

Study selection Only double-blinded randomised controlled trials were included.

Data extraction Extracted summary estimates included mean difference (MD) and standard deviation (SD) for change in body weight, change in urine volume and change in serum sodium levels, and hazard ratio with 95% confidence interval for all cause mortality, heart failure-related mortality and hospitalisation.

Results Eight double blinded randomised controlled trials (RCTs) were reviewed. Assessment of risk of bias was conducted by investigating random sequence generation, allocation concealment, blinding, completeness of outcome data and potential for selective reporting. We found no evidence of significant bias. Tolvaptan showed benefits in reducing body weight, increasing urine volume, and increasing serum sodium. No reduction in mortality or the need for hospitalisation was detected, however, there was some evidence that HF patients who have hyponatraemia might have a better outcome from improving the serum sodium levels using tolvaptan.

Finally, tolvaptan appeared to be safe, as it did not cause worsening of the renal function or hypotension.

Conclusions A meta-analysis of the published literature suggests short term benefits of tolvaptan, whereas the impact on mortality or hospitalisation rates is yet to be determined.

Abstract 1 Figure 1 A forest plot to demonstrate the benefits of tolvaptan in reducing body weight

Abstract 1 Figure 2 A forest plot to demonstrate the effects of tolvaptan in increasing serum sodium levels