

A Systematic Review of Efficacy and Safety of Chemical Thromboprophylaxis in Renal Transplantation

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Introduction

Individuals undergoing renal transplantation are at increased risks of thrombosis and bleeding. It is unclear what the risk benefit ratio is of administering chemical thromboprophylaxis (TP) in these patients as there have been no previous systematic reviews to address this important question, which is reflected in the variations in national guidelines.

Objectives

To assess the efficacy (symptomatic, asymptomatic venous thrombosis and renal allograft thrombosis) and safety (major bleeding and mortality) of a form of chemical thromboprophylaxis intervention compared with another form, no intervention or placebo for up to 12 months post-transplant.

Methods

Pubmed, MEDLINE, Embase, Cochrane, CINAHL, World Health Organisation (WHO) International Clinical Trials Registry Platform and ClinicalTrials.gov databases were searched from 1946 to present for randomised controlled trials (RCTs), controlled clinical trials, single and multiple intervention studies. Inclusion criteria included (1) participants undergoing renal transplantation only with no contraindication to TP and (2) no history/clinical suspicion of acute organ rejection.

Results

13 studies were included in the analysis (n= 1600 patients), of which 5 were randomised trials (RCTs), Figure 1. Each study used a different form of chemical TP, different timing of onset and TP duration. All RCT's were judged to be at high risk of bias (Figure 2). Symptomatic and asymptomatic VTE were very poorly reported, with only one retrospective study reporting on this outcome.

Figure 1: PRISMA diagram

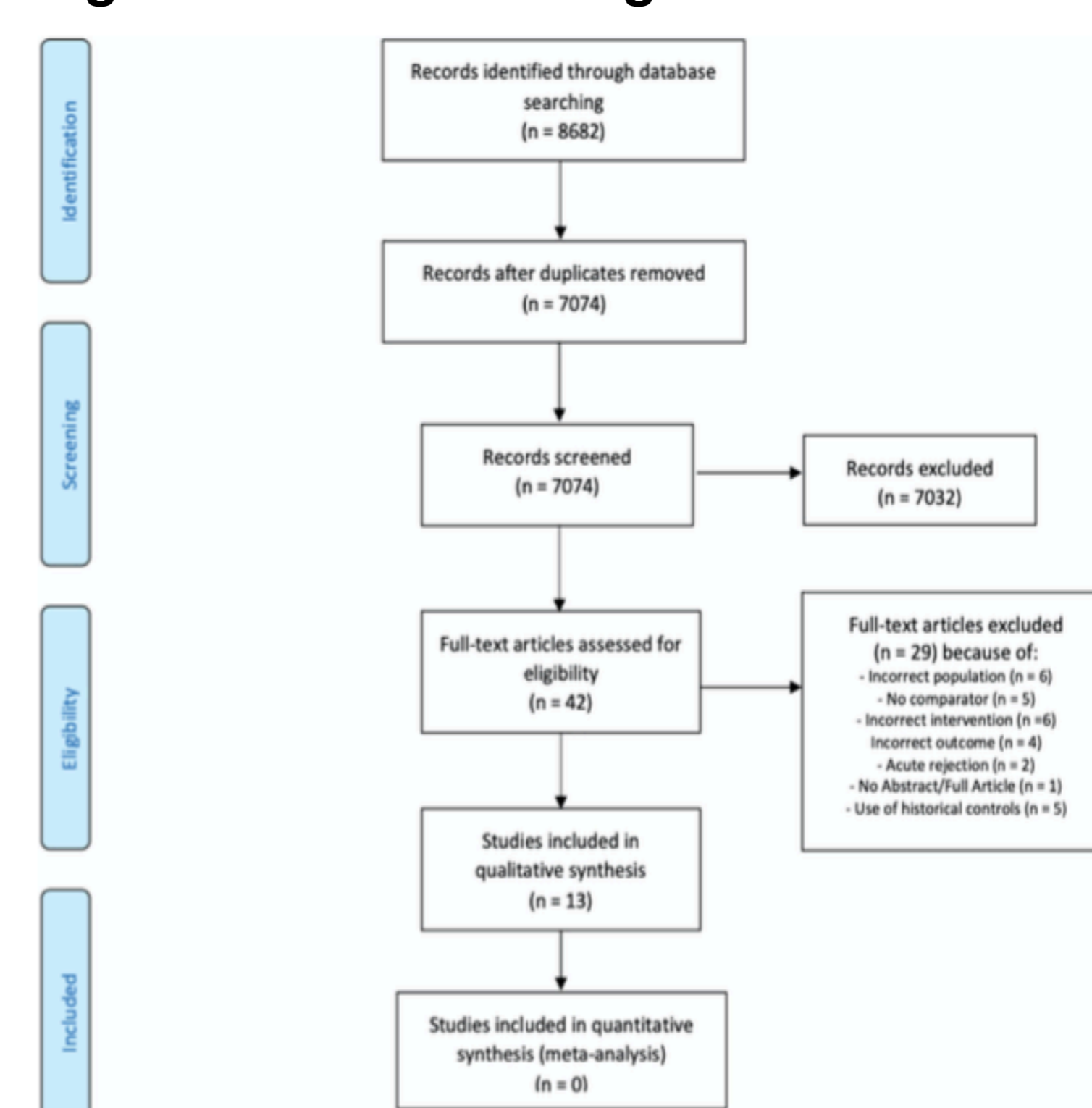
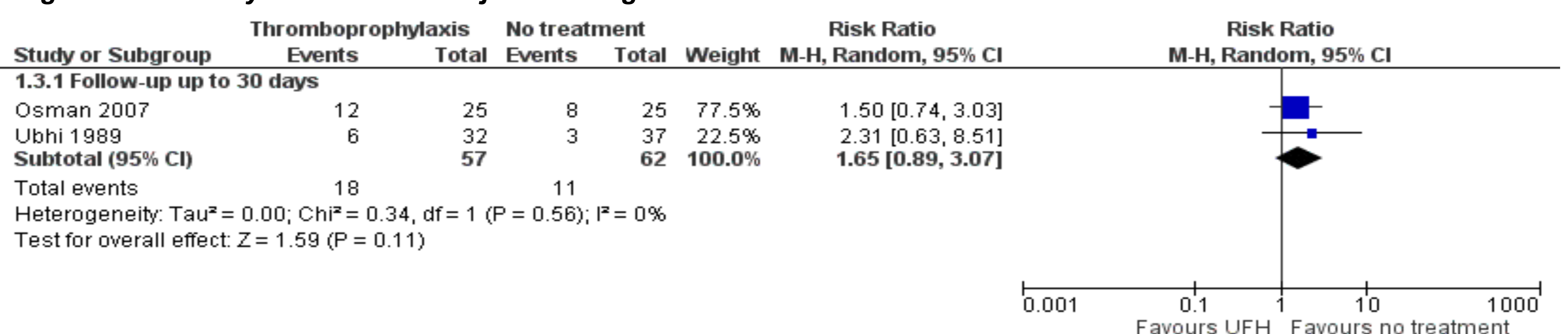


Figure 2: Risk of Bias Assessment Using Cochrane Methods for RCTs

	Random sequence generation	Allocation concealment	Blinding of participants and personnel	Blinding of outcome assessment	Incomplete outcome data	Selective reporting	Other sources of bias	Overall
Barnes (1974)	Low	Low	High	Low	Low	High	Unclear	High
Horvath (1975)	Low	Low	Low	Low	Low	High	Unclear	High
Mathew (1975)	High	High	High	High	Low	High	Unclear	High
Ubhi (1989)	High	High	High	High	Low	High	Unclear	High
Osman (2007)	Low	Low	High	High	Low	High	Unclear	High

Judgement: High, Unclear, Low

Figure 3: Clinically relevant non-major bleeding



Conclusion

There is lack of good quality evidence to demonstrate the benefits of chemical TP during renal transplantation. There are signals that chemical TP (compared to no TP) may reduce the rate of renal allograft thrombosis but increase the risk of bleeding. However, large-scale randomised controlled trials are needed to determine the risk benefit ratio of TP in renal transplantation surgery.

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