Regional anticoagulation with citrate for continuous renal replacement therapy

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Review question(s)
To assess the clinical utility and safety of citrate as a means of regional anticoagulation in continuous renal replacement therapy in adults

Searches
MEDLINE - from inception to 6 November 2015
EMBASE - from inception to 6 November 2015
Cochrane Central Register of Controlled Trials (CENTRAL) - from inception to 6 November 2015
Bibliography of sourced randomised controlled trials
Personal library of review team members
No restriction on language

Link to search strategy
http://www.crd.york.ac.uk/PROSPEROFILES/15302_STRATEGY_20141117.pdf

Types of study to be included
Randomised controlled trials only

Condition or domain being studied
Regional anticoagulation with citrate for continuous renal replacement therapy

Participants/ population
Adults aged > 18 years admitted undergoing continuous renal replacement therapy. Non-continuous modalities of renal replacement therapy were excluded.

Intervention(s), exposure(s)
Regional citrate anticoagulation as a means of prolonging extracorporeal circuit life in continuous renal replacement therapy, improving dialysis efficiency by reducing circuit loss and/or down-time, preventing bleeding and metabolic abnormalities; when compared to an alternative method. The anticoagulation method may be regional (as with citrate) and limited to the extracorporeal circuit, or systemic (with unfractionated heparin for example).

Comparator(s)/ control
Comparator will be all other studied alternatives to regional citrate anticoagulation conducted as part of a randomised controlled trial.

Outcome(s)
Primary outcomes
Dialysis extracorporeal circuit life in hours (as determined by the study reviewed)
Effect of citrate on circuit life as measured in hours compared to an alternative regime.

**Secondary outcomes**

**Mortality**

Bleeding events (as defined by the study)

ICU length of stay

Where possible, the effect of regional citrate anticoagulation on more patient-centric discrete variables will be presented as a ratio.

**Data extraction, (selection and coding)**

Studies to be included in this review are those evaluating the use of regional citrate anticoagulation for continuous renal replacement therapy. Abstracts identified from search terms will be collated. They will be screened by A. Ellis for inclusion. A second blinded screening will be carried out by D. Anderson and J. Gatward. Arbitration will be sought from D. Gattas for incongruity between selections. Abstracts selected at this stage will then be used to obtain original copies of published trials for inclusion in the review and for data extraction purposes. The following information (where available) will be extracted: Author, year of publication, study demographics, sample sizes, inclusion/exclusion criteria, CRRT modality, choice of anticoagulation technique as comparator, CRRT dosing and prescription characteristics, primary outcome, secondary outcomes.

**Risk of bias (quality) assessment**

The Cochrane Collaboration Risk of Bias tool will be used to assess risk of bias for included studies. It will be included as a risk of bias summary.

**Strategy for data synthesis**

Once the relevant data have been collected, they will be presented in tabular format where trial homogeneity exists. Where there are discrepancies in trial outcome or design, this will be noted and may be a focus of discussion.

Meta-analysis and synthesis of this data will be carried out according to the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement. Statistical support will be sought from an institutional statistician for quantitative synthesis and the production of outcome ratios and Forest plots.

**Analysis of subgroups or subsets**

None planned

**Contact details for further information**

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**Organisational affiliation of the review**

None

**Review team**
Collaborators
Dr David Anderson, Royal Prince Alfred Hospital

Anticipated or actual start date
01 November 2014

Anticipated completion date
02 November 2015

Funding sources/sponsors
None

Conflicts of interest
None known

Language
English

Country
Australia

Subject index terms status
Subject indexing assigned by CRD

Subject index terms
Blood Coagulation; Citrates; Citric Acid; Humans; Renal Replacement Therapy

Stage of review
Completed but not published

Date of registration in PROSPERO
05 January 2015

Date of publication of this revision
29 October 2015

DOI
10.15124/CRD42015015302

Stage of review at time of this submission

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<thead>
<tr>
<th>Activity</th>
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<th>Completed</th>
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<tbody>
<tr>
<td>Preliminary searches</td>
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<tr>
<td>Piloting of the study selection process</td>
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<td>Formal screening of search results against eligibility criteria</td>
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<td>Data extraction</td>
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<td>Risk of bias (quality) assessment</td>
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<td>Yes</td>
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<td>Data analysis</td>
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faith and registered the review in PROSPERO. CRD bears no responsibility or liability for the content of this registration record, any associated files or external websites.