How patient care has improved with the introduction of Regional Citrate anticoagulation in renal replacement therapy within Adult Critical Care

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Background
- Traditionally, Heparin is used as a systemic anticoagulation for continuous renal replacement therapy however, although it is inexpensive risks include:
  - increased risk of bleeding
  - not very effective (average filter length times 34 hrs)
  - patients excluded
  - nursing time
- Regional Citrate Anticoagulation (RCA) used for many years in Europe. Introduced into UK 2008 and implemented at LTHT in 2013
- Slow uptake due to concerns for patients suffering from liver failure. Very little data to suggest it is safe.

Implementation Process

Audit
- To compare results with previous audits carried out using Citrate
- Used as a quality assurance tool after implementation of Regional Citrate Anticoagulation
- To look at the efficiency of Citrate in comparison to Heparin
- To monitor the reasons for discontinuation
- To look for any patterns that may be occurring
- To look at the efficiency of citrate anticoagulation in patients with varying degrees of liver failure

RCA Circuit Life

This graph shows significant improvement on how long circuits are lasting therefore resulting in improved quality of care for critical care patients requiring CVVHD.

Reasons for Discontinuation

Patient Outcome Audit

Results
- Due to the implementation of the new Multifiltrate machine using citrate anticoagulation there has been a significant improvement in the circuit life span.
- This has had a positive effect on the amount of treatment the patients receive.
- Patients are receiving optimum treatment which therefore should help improve their outcomes

Protocol
The protocol has been adapted and changed according to the audit results and needs of the patients.

It has been classed as the gold standard nationally for Regional Citrate Anticoagulation (RCA) using the Fresenius MultiFiltrate® machine.

LTHT critical care are the leaders in using RCA on liver patients and the protocol has been adapted for these specific patients.

In the future we will be introducing different treatments as part of the quality assurance to give patients the optimum care required.