Carbapenem resistant organisms in haemodialysis patients who have had dialysis treatment away from base: A single centre experience

Graham-Brown MPM, Bell R, Taylor S, Cox T, Luscombe F, Wimbury C, Chamberlain H, Warwick G

John Walls Renal Unit, University Hospitals of Leicester NHS Trust

Background

Enterobacteriaceae are a large family of bacteria that are common amongst the normal flora that colonise the gastrointestinal tract. They are common causes of opportunistic urinary tract infections, intra-abdominal and bloodstream infections.

Over the last decade, enterobacteriaceae and other bacterial species have developed resistance to carbapenem antibiotics, coining the term carbapenem resistant organisms (CRO). There is growing reliance in hospital medicine on carbapenem antibiotics to treat serious infections caused by drug-resistant gram-negative bacteria (including Enterobacteriaceae), and the emergence of CRO is a worrying development.

Recent warnings have highlighted the need to screen patients returning to the UK following hospital treatment in countries with a high prevalence of CRO. Haemodialysis (HD) patients who receive dialysis abroad are all potential carriers of CRO even if they have been treated as outpatients.

In our main HD unit (capacity 168), we have a large population of SE Asian patients who make frequent visits to India and Pakistan. We have introduced strict screening (by stool sampling or rectal swabs) for CRO carriage for all returning HD patients with isolation, containment and cleaning procedures in excess of those suggested by national guidelines. This has implications for patients, staff, dialysis scheduling and resources.

Methods

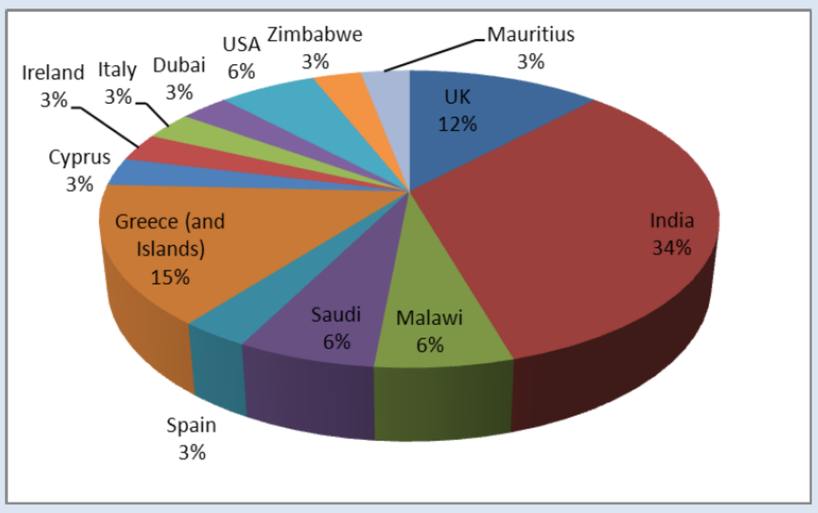
A total of 34 prevalent HD patients were identified over a twelve month period from December 2013, who returned to our unit having spent time dialysing at centres abroad and in the UK.

We reviewed:

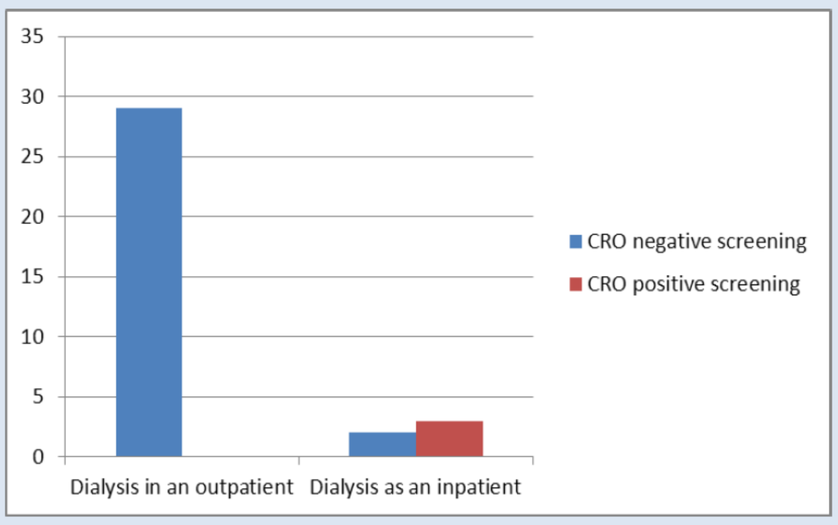
- Compliance with CRO screening policy
- Numbers of CRO positive swabs
- Destination and duration of patient trips
- Details of their time at other units where possible
- Hospitalisation while abroad
- Compliance with infection prevention policies in positive cases

Results

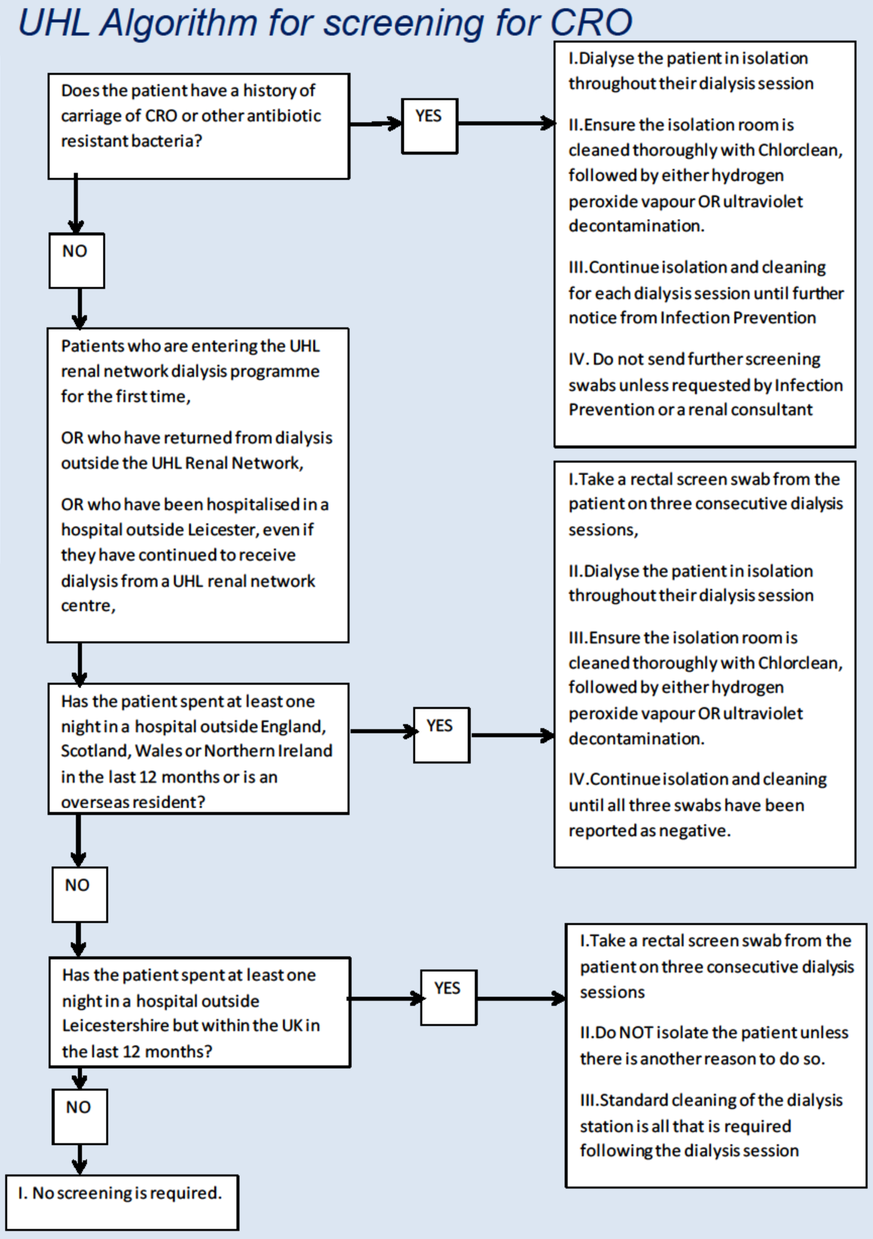
Distribution countries visited



Inpatient vs Outpatient HD and CRO screening



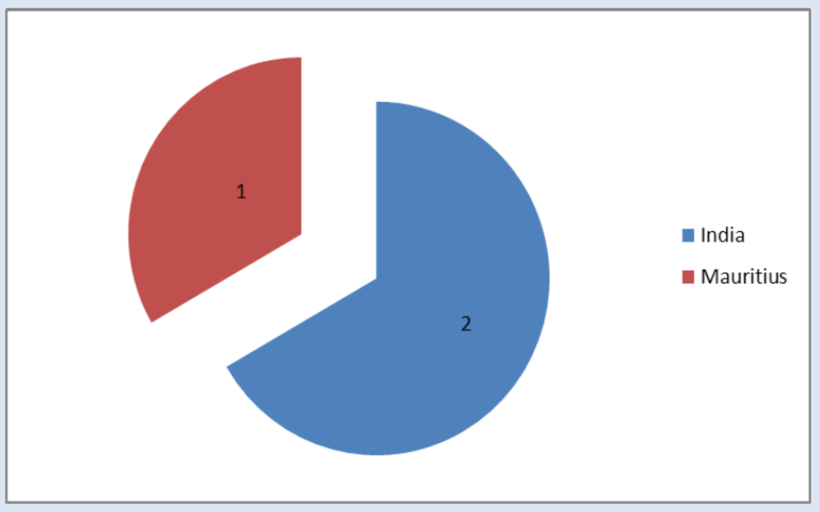
UHL Algorithm for screening for CRO



Length of stay, compliance with screening and Isolation

Characteristic	
Mean length of stay abroad	43 days (range 4-159 days)
% Compliance with CRO screening	97.2%
% Invasive CRO infections	0%

Source countries from which patients returned with CRO positive swab



Discussion

29 of the 34 patients received their care exclusively as an outpatient, with five requiring inpatient care whilst abroad. The three patients who were found to have CRO positive rectal swabs had all received inpatient care whilst abroad. None of the patients who received their care exclusively as an outpatient had positive swabs.

We identified no invasive CRO infections. 97% returning patients were screened according to our policy and isolated appropriately, but this required implementation of expensive, time consuming (~5hours) and labour intensive isolation policies, including triple cleaning of isolation rooms after dialysis with:

- Chlor-Clean
- Steam cleaning
- Hydrogen peroxide vapour

The protocol for cleaning and screening was devised in collaboration with the local infection prevention and microbiology teams and are over and above national recommendations.

There is no established method for de-colonising patients with CRO carriage, so patients who have been found to be positive on screening or who have a previous history of CRO carriage are considered to long term carriers. Such patients are dialysed in isolation over the long term and their isolation room decontaminated as above.

Conclusions

Carriage of CRO in returning HD patients is an increasing problem. There are few reliable data on the efficacy of screening policies and the utility of isolation. Whilst our experience might suggest that only patients who have received inpatient hospital care whilst abroad are at high risk of acquiring CRO carriage, we need more information and a larger sample to confirm these findings.

The introduction of national reporting would allow a more reliable estimate of the risk to outpatient haemodialysis patients and a proportionate response in terms of isolation and cleaning regimes.

matthew.graham-brown@uhl-tr.nhs.uk

52 ERA 750--SP

L7) Dialysis. Epidemiology, outcome research, health services research.

Matthew Graham-Brown

DOI: 10.3252/pso.eu.52era.2015

ePosters supported by F. Hoffmann- La Roche Ltd.