

Reporting E.coli bacteraemia in UK Renal Registry – what does it tell us about our haemodialysis population?

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Background

As stated in the 2017 UK Renal Registry (UKRR) report Public Health England (PHE) has carried out mandatory enhanced surveillance of MRSA bacteraemia since October 2005 and of MSSA bacteraemia since January 2011 for NHS acute trusts, with the subsequent addition of E. coli bacteraemia and C. difficile reporting. It was also stated that in previous reports 'infection data were validated by securely emailing individual renal centres to confirm that infections were related to dialysis patients. Historically, this has resulted in only a small number of alterations in cases and so was not undertaken for these analyses'.

Our unit was highlighted as having the highest rate of E.coli bacteraemia of 4.45/100 HD days. Should we worry?

NHSE is proposing new targets aimed at reducing levels of E.coli, MSSA, Klebsiella and Pseudomonas be included in the 2012 NHS standard contract. According to PHE E.coli infections increased by 27% between 2012 to 2018.

Method

All E.coli positive blood cultures in patients on haemodialysis were reviewed as to their root cause in 2016 and 2017. This included review of case records, microbiology and dialysis access.

Results

In 2016 and 2017 there were 27 positive blood cultures in 21 patients (2016 14 in 13 patients; 2017 13 in 11 patients). Urosepsis was confirmed as the source in 5; bowel perforation or diverticulitis n=5; ischaemic bowel n=1; biliary sepsis n=2; infected APK/LD cyst n=2; limb gangrene n=3; leg ulcers n=1; pneumonia (confirmed at post mortem) n=1; presumed abdominal source n=1. The vascular access was: 4 AVG; 10 AVF; 6 Tunnelled dialysis catheters (TDC).

Conclusion

Whilst always necessary to be cognisant of infection rates and types of infection in our haemodialysis patients reporting E.coli rates without context is unhelpful. The purpose of the NHSE's surveillance is to identify E.coli linked to healthcare associated infections so they can be prevented by altering practice eg: increase in urinary catheter related E.coli sepsis (look at issues around catheter care), E.coli sepsis post urological procedures (review of surgical technique, need for/choice of antibiotic prophylaxis), increase in cases of E.coli pyelonephritis (are lower UTIs being picked up and treated adequately in the community?) etc.

It is unclear by reporting these rates in the UKRR whether the implication is that these E.coli infections are avoidable haemodialysis practice, if high rates are deemed a marker of the quality of renal unit care and/or

of the vascular access type and/or its care? Our root cause analysis has confirmed the sources of the E.coli infections have no relation to practice within our unit.

Our current vascular access related infection rates are 0.16 events/1000 catheter days in TDCs (MRSA x1, MSSA x1, Klebsiella x2, Serratia x2, Enterococcus x1) and 0.02 events/1000 AVF/G days in AVF/G (MSSA x2). These rates compare very favourably to published rates in the literature. We do not use antibiotic-lock solutions (resistance risk; hides poor practice). The best reported TDC rates in units where these are used are 0.62, 0.28, and 0.24 events/1000 catheter-days (CJASN 9: 1156–1159, 2014)