

Control of OXA-48 Klebsiella pneumoniae outbreak on an Orthopaedic ward at Colchester Hospitals NHS Foundation Trust.

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INTRODUCTION

The emergence and challenging burden of OXA-48 producing Klebsiella pneumoniae has significant clinical and public health impact. The number of isolates from UK hospital microbiology laboratories confirmed as carbapenemase-producing Enterobacteriaceae (CPE) has risen progressively over recent years imposing great challenges in antimicrobial prescribing, infection control and managing severe infections associated with high risk mortality. We describe an outbreak of OXA-48 Klebsiella pneumoniae on an orthopaedic ward at Colchester Hospital, East of England.

INDEX CASE

A 46 year old man with a background of polycystic kidney disease and living donor renal transplant presented with sepsis of unknown cause to Colchester Hospital on 13/12/2016. He had had recurrent admissions to a London hospital in the last 6 months for sepsis, in which no cause had been identified despite extensive investigations. He had had a Klebsiella pneumoniae bacteraemia within the last 6 months which had been fully sensitive. At the time of admission to Colchester, he was on a 6/12 course of Co-amoxiclav which had been started by the London hospital due to recurrent sepsis.

He became a medical outlier on a orthopaedic ward and was placed in a 6 bedded bay in bed A2 (A1-A6) within 24 hours of admission. Blood cultures from admission were reported as a probable CPE organism on 15/12/2016 and following this the patient was moved to a side room on a medical ward. The reference laboratory confirmed a OXA-48 Klebsiella pneumoniae on 21/12/16. The isolate was intermediate to Meropenem and sensitive to Tigecycline. He was treated with tigecycline for 10 days and made a good recovery.

CPE SCREENING

9 patients were CPE screened as they either had been in direct contact with the index case in the same bay or in the same bay as a patient whose CPE screen was positive. 3 rectal swabs were taken 48 hours apart. The table below provides details on the 2 patients who had a positive screen.

- 1 patient did not have a CPE screen as they passed away soon after the index case was confirmed.
- 3 patients did not have more than one negative screen as they were discharged before the 48 hour interval to repeat a swab.

OUTBREAK MANAGEMENT

- Patients A2 and A4 were put at the end of the theatre list when found to be CPE positive. The reference laboratory confirmed they had the same organism and sensitivity pattern as the index case.
- Once patients in A bay were moved to side rooms, the bay including equipment such as hoists, turn tables and commodes were high cleaned and Hydrogen Peroxide Vapor (HPV) fogged before any new admissions were taken.
- Daily meetings to manage the outbreak and educate staff took place from the week of 19/12/17 by the infection control and microbiology team. The meetings were attended by orthopaedic and theatre staff, matrons, directors of nursing as well the bed managers and facilities teams.
- If any patient was transferred from the orthopaedic ward to another hospital, then the receiving hospital was informed of the CPE outbreak.
- Over a 48 hour period, patients from an elective surgical day ward (1) were moved to another (2) which had capacity to hold all the patients. This was followed by the orthopaedic ward moving their patients to the elective surgical day ward (1).
- Once empty, the orthopaedic ward was high cleaned and HPV fogged. All the medical supplies, linen and consumables were disposed of. The ward re-opened within 48 hours

Patient	CPE screen 1	CPE screen 2	CPE screen 3	Other Microbiology	Outcome
A1 Δ septic joint	Negative	15/12 Positive – Klebsiella pneumoniae OXA-48 present	X	Nil	Moved to a side room on same ward and then discharged
A4 Δ PJI – first stage revision	19/12 Positive – Klebsiella pneumoniae OXA-48 present	X	X	Nil	Moved to another surgical ward (2) in side room

LESSONS LEARNED

- The importance of identifying patients on admission who require CPE screening and the value of implementing 3 consecutive screens (the first screen may be negative).
- Though a tertiary centre decision, was prophylactic co-amoxiclav appropriate for our index patient?
- The importance of education amongst health professionals and patients on CPE. National guidance should be incorporated into induction teaching. A patient leaflet is already available at the trust.
- Importance of a multi-disciplinary approach and effective communication in managing outbreaks.
- Highlights the value of antimicrobial stewardship and developing outbreak strategies as antibiotic resistance rises and the risk of further similar outbreaks only increases.