Line infection in patients with haematological malignancies

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**BACKGROUND**
- Kingston Hospital is a district general hospital with a busy haematology day unit & inpatient service caring for patients with haematological malignancies
- Many patients require Central Venous Catheters (CVCs) for chemotherapy
- These lines are notoriously susceptible to infection, and a recent death from a line associated septicaemia put a spotlight on how these infections are recognised & managed
- The British Society of Haematology [BSH] gives a standard of care for prevention & management

**AIMS**
- To assess if we are meeting the standards of care in preventing infection with routine line care
- To measure the infection rate / 1000 catheter days
- To identify which organisms are causing line infections
- To compare management of infected CVCs to the BSH standard
- To consider what can be changed to better prevent & manage line infections

**METHODS**
- Retrospective observational study
  - Case note audit
  - All haematology patients with CVC
  - Jan 2015-Aug 2016
  - 22 lines in 13 patients
- Audit of routine line care
  - Info for patients on risks, benefits & care
  - VIP scoring
  - Regular flushes
  - Duration in situ
- Audit of line infections
  - 11 infections in 13 patients
  - Definition of infection type
  - Management
  - Communication between clinicians
  - Rate of infection
- Analysis & recommendations
  - Comparison to BSH standard
  - Meeting with haematology doctors & nurses and microbiology
  - Recommendations to prevent & manage line infection

**RESULTS:**

**CVC line infections (BSH guidelines)**
1. CVC related blood stream infection [8 cases]
   - 2 blood cultures [BCs] +ve for the same organism
   - From 2 sites at different times & evidence CVC colonised with the same organism [definite vs probable]
2. Exit site infection [1 case]
   - erythema, discharge, tenderness CVC
3. Tunnel infection [2 cases]
   - pain, induration along CVC track

All infections require 10-14 days antibiotics
- Remove the CVC line if:
  - Not needed
  - Cultures remain +ve after 48th therapy
  - Proven staph aureus / pseudomonas spp / mycobacterium spp / fungi

**CONCLUSION**
Line infection rates are within the expected range & comparable to previous years

But line infection is incredibly common
- 11/13 patients developed infection
- One patient died from line associated septicaemia
- Many patients had long hospital stays, often in the last months of life
- High prevalence of depression, suicidal thoughts & actions

Uncertainty regarding what to do if a line is infected
- Duration of antibiotic therapy
- Continued use of the line
- Line removal

**RECOMMENDATIONS**
- BSH guidance:
  - Units should audit complications associated with CVCs & use the data to develop preventative measures
  - Close liaison with the local micro department is essential to monitor trends in infection
  - Protocol for insertion and use
  - Involve patients in line care
  - Training for nurses and doctors
- Simplified / standardised protocol for infected lines
  - What samples should be sent [including line tip if removed]
  - Type & duration of antibiotics if sensitivities pending
  - Whether or not to remove or use the line