

Reducing the Door to Needle Time for Antibiotics in Suspected Neutropenic Sepsis Using a Dedicated Clinical Pathway.

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Background

Neutropenic sepsis is a potentially fatal complication of systemic anti-cancer therapy requiring rapid, specialist input. The NICE Clinical Guideline 151 advises door to needle time for first dose antibiotics of less than one hour¹. It is mandated in the NHS Standard Contract for Cancer that clinical pathways for managing suspected neutropenic sepsis are in place². The dedicated care bundle "Sepsis Six" is in use widely for any patient presenting with severe sepsis and neutropenic sepsis³.

Aim of the Audit

After initial retrospective audit, a robust clinical pathway based on the 'Sepsis Six Care Bundle' to treat patients with suspected neutropenic sepsis, reduce time to antibiotics and improve patient safety and clinical performance has been developed.

Ongoing prospective audit has been carried out to assess the benefit of having such a clinical pathway in accordance with NICE Clinical Guidelines.

Standard

100% of patients presenting to an Oncology Helpline who have received chemotherapy within six weeks and have infective symptoms or pyrexia of 38°C or more, have antibiotics within one hour of arrival.

Methods

Baseline retrospective Audit

Case notes for 26 patients presenting to the Cheltenham General Hospital Oncology Centre 24 hour helpline who presented with suspected neutropenic sepsis were assessed over a two week period. The following records were taken-

- Arrival time
- Time antibiotics given
- Patient demographics
- Cancer details
- Aim of treatment
- Regime of chemotherapy
- First/second line treatment or other
- Need for ITU/HDU admission
- Outcome- continuation of chemotherapy or cessation of chemotherapy/death

Baseline Results

Patient Demographics

Age range 31-78 (median 62.5)
 42% male, 58% women
 Treatment aim- palliative 65%, adjuvant 35%
 Primary disease- breast 23%, 11% GI,
 7% head and neck, 11% leukaemia,
 27% lymphoma, 11% myeloma,
 11% gynaecological cancers

Door to Needle Time Results

32% of patients with suspected neutropenic sepsis received antibiotics within one hour of arrival to a dedicated oncology helpline.

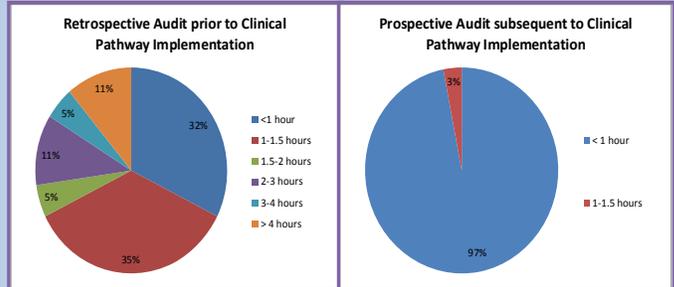
Strategy for Change

- 1) A Multidisciplinary Neutropenic Clinical Pathway has been created with the principles of the Sepsis Six Care Bundle. Antibiotics are given without the knowledge of the neutrophil count in eligible patients. Fig 1
- 2) Patient Group Directive (PGD) for nurse led prescribing and delivery of the first dose of antibiotics and implementation of this through education.
- 3) Multidisciplinary Team Education Programme implemented for all staff working in the Oncology Department, from Health care assistants, nursing staff, junior and senior doctors.
- 4) Prospective reaudit monthly.

Fig 1

Prospective reaudit undertaken over a two week period with the changes implemented

97% of patients with suspected neutropenic sepsis received antibiotics within one hour of arrival to the oncology helpline.



Discussion

It is well known from NICE guidance that expeditious use of antibiotics in patients with suspected neutropenic sepsis after having been treated with chemotherapy has reduced morbidity and mortality rates.

The changes implemented with our strategies have resulted in a positive outcome for patients with a reduction in morbidity and mortality from neutropenic sepsis, through use of a robust dedicated clinical pathway and education

Continued prospective audit on a monthly basis has shown a sustained change with door to needle time at or over 97% of less than one hour of arrival.

Conclusion

Implementation of a dedicated care pathway used throughout an oncology department has resulted in a reliable system

Education and engagement for all staff involved in the immediate care for patients with suspected neutropenic sepsis

Cost neutral changes have led to a radical change in the patient pathway and now meeting peer review requirements.

Messages for others

- Create a 'neutropenic sepsis' team involving representatives from all parts of the team- HCA, junior and senior nurses, oncology pharmacist, microbiologist, junior and senior physicians
- Have an agreed plan for educating new staff and updating all staff regularly
- Develop a clinical pathway
- Initiate a PGD, allowing nurses to give first dose antibiotic and for them to prepare it whilst patient is in transit
- Neutropenic sepsis is a medical emergency- keep this mind set throughout

References

- 1) National Institute for Health and Care Excellence (NICE) (CG151) September 2012 <http://www.nice.org.uk/nicemedia/live/13/905/60906.pdf>
- 2) NHS England Standard Contract for Cancer: Chemotherapy (Adult), Section B Part 1-Service Specifications <http://www.england.nhs.uk/wp-content/uploads/2013/06/b15-cancer-chemo.pdf>
- 3) Sepsis Six Care Bundle, Society of Critical Care Medicine, 2012

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