Management of Sepsis in Clinical Haematology Unit (CHU)
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Introduction

- In the United Kingdom, there are more than 250,000 episodes of sepsis annually, with at least 44,000 people dying as a result.
- Incidence of sepsis is rising by approximately 11.5% each year ("Hospital Episode Statistics (HES)" data).
- NHS Cost each year: (YTHE estimated)
  - £1.5 to £2 billion on sepsis treatment
  - £11 to £15 billion on wider economy due to sepsis.
- The 2006 landmark study by Anand Kumar showed an increase in mortality of 7.6% for every hour's delay in administration of appropriate antibiotic therapy.
- As overall mortality has reduced with time, the magnitude of this effect might have reduced, but studies still largely concur that each hour's delay increases the risk of death by 2-5%.

Definitions

- **Trigger**: Temperature higher than 38°C or NEWS trigger (New EWS ≥ 5 or Single Parameter > 3) or Clinically unwell/ sick
- **Neutropaenic Sepsis**: Neutropaenic sepsis is defined as a temperature higher than 38°C or symptoms and/or signs of sepsis, in a person with a neutrophil count of 0.5 x 10^9/L or lower. (NICE 2015)

Aims

Our aim was to ensure appropriate management of patients who developed sepsis in Clinical Haematology Unit (CHU) in all cases (100%) in terms of:

- Appropriate use of sepsis tool
- Management as per Sepsis 6
- Trigger to Needle time less than 60 min

Method

- **Inclusion Criteria**:
  - CHU Inpatient
  - Aged over 18 years
  - Who developed sepsis during inpatient stay
- **Exclusion Criteria**: Patients Admitted With
  - Sepsis
  - Neutropaenic sepsis
  - Neutropaemia
- **Duration of Study Period**:
  - Audit: 01 January 2019 to 30 April 2019 (04 Months)
  - First Intervention
  - Re-audit post intervention: 01 May 2019 to 31 July 2019 (03 Months)

Baseline/Audit Data

- 3 out of 17 patients had a trigger to needle (TTN) time over 60 minutes, all of which (100%) were
  - Out of hours
  - No as required first stat dose of antibiotic prescribed.
- Non-compliance with sepsis 6 also noted in terms of
  - Inadequate use of sepsis toolkit,
  - Use of lactate in treatment decisions,
  - Intravenous fluid prescription and
  - Measurement of urine output.

Interventions

1. As required first stat dose of antibiotic (if sepsis/spikes) & intravenous fluid (if hypotensive or lactate>2) for neutropaenic & post chemo patients
2. Sepsis toolkit on vital Pac
3. Sepsis pack on ICE system
4. Staff education to junior doctors & nursing staffs on sepsis 6 protocol details

Re-Audit Post Intervention

- Following intervention, improvement was noted in trigger to doctor (TTD) time. But it did not impact on trigger to needle time (TTN).
- Similar to pre-intervention, all cases of TTN over 60 minutes (100%) had no as required first stat dose of antibiotic prescribed.
- The failure to improve the use of sepsis 6 toolkit was due to change from paper to complex online system without adequate staff awareness & training.

Discussion

- Sepsis is poorly managed out of hours and when sepsis toolkit is not routinely used.
- All Cases of TTN > 60 both in both data cycles happened out of hours and no as required first stat dose of antibiotic prescribed.
- Improving trigger to doctor time does not impact on TTN.

Conclusions

- The most effective way to improve trigger to needle time was found to be prescribing as required first stat dose of antibiotic to high risk patients (neutropaenic & post-chemo patients) with triggers clearly mentioned & nursing staff aware.
- To improve compliance with sepsis 6, sepsis online toolkit should be simplified along with regular staff training.

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