Audit in the Emergency Department

Audit CPI-06

Severe Sepsis and Septic Shock in Adults

Surviving Sepsis Campaign

Background.

The in-hospital mortality from severe sepsis (30%) and septic shock (50%) remains extremely high. Sepsis is a complex syndrome that is difficult to define, diagnose, and treat. It is a range of clinical conditions caused by the body's systemic response to infection, and is one of the leading causes of death in hospital. Rapid and timely intervention is critical to successful treatment. In 2002 a collaboration was formed called the Surviving Sepsis Campaign (SSC) in order to help meet the challenges of sepsis and to improve its management, diagnosis and treatment. One of the main goals of the campaign is to reduce the incidence of sepsis mortality by 25% within 5 years. The SSC released guidelines on the management of patients with severe sepsis and septic shock. The guidelines can be divided up into two broad categories, known as bundles. The first is the Resuscitation bundle (see below and overleaf) which covers the care that should be provided within the first 6 hours. The second is the sepsis bundle which is largely delivered on the ITU. The resuscitation bundle sets standards for the use of goal-directed resuscitation therapy, use of blood cultures and anti-biotics and the use of invasive monitoring.

Why audit this particular condition? The purpose of this audit is to assess our practice against these set standards. Further information can be found on the CDSG.

Sepsis Resuscitation Bundle

Surviving Sepsis

(To be started immediately and completed within 6 hours)

- **Serum lactate measured.**
- **Blood cultures obtained prior to antibiotic administration.**
- **From the time of presentation, broad-spectrum antibiotics administered within 3 hours for ED admissions and 1 hour for non-ED ICU admissions.**
- **In the event of hypotension and/or lactate > 4mmol/L (36mg/dL):**
  - Deliver an initial minimum of 20 ml/kg of crystalloid (or colloid equivalent)
  - Give vasopressors for hypotension not responding to initial fluid resuscitation to maintain mean arterial pressure (MAP) ≥ 65 mm Hg.
- **In the event of persistent arterial hypotension despite volume resuscitation (septic shock) and/or initial lactate > 4 mmol/L (36 mg/dl):**
  - Achieve central venous pressure (CVP) of ≥ 8 mm Hg.
  - Achieve central venous oxygen saturation (ScvO2) of ≥ 70% .*

** Achieving a mixed venous oxygen saturation (SvO2) of 65% is an acceptable alternative.*

Special points of interest:

- Sepsis is a leading cause of in-hospital mortality.
- Goal-directed aggressive resuscitation has been shown to significantly reduce the mortality form sepsis.
- The standards for anti-biotic usage is that all patients with severe sepsis should be given broad spectrum antibiotics within 3 hours of A&E admission.

Methods

Retrospective audit

Sample: 50 consecutive Emergency Department patient records

Criteria

Inclusions: Patients over 18 years old coded as Sepsis, Infection or shock (Including Hypotension and Infection.)

The internationally agreed definitions of Severe Sepsis/ Septic Shock should be used (see Guidance)

Please ensure you register the audit with your Trust Clinical Audit Department

Notes can be obtained by computer search of the ED database. The coding system on the back of the ED cards should be searched using the terms:

The search should extend over a sufficient period to include the 50 most recent obtainable events as a minimum. Contact the ED information manager to obtain a list of case notes matching these criteria.

Cards may only be physically kept in the department for a couple of weeks and then sent for scanning and archiving electronically. This can take up to 4 weeks.

Once you have the cards for the relevant patients then you need to record the data in an accessible way. This should be entered into the excel spreadsheet that contains all the relevant cells and formulae. For some of the items on the spreadsheet you may want to include a number of options. To maintain a consistency between rolling audits we ask that you stick to the approved list of criteria.

Work plan

Week 1-2, background reading and ordering case notes

Week 3-4, accessing records and entering data onto spreadsheet

Week 5-6, preparing the Powerpoint presentation of your findings

Presentation of findings

The data should be collated and then presented using the associated PowerPoint presentation with the new data entered.

Data **MUST** then be uploaded onto www.stemlyns.org.uk/admin as instructed. Please obtain the username and password from your audit lead.

Further Information contact:

How to upload the audit data

- www.stemlyns.org/admin
- Username and Password
- Select Appropriate Audit Title
- Select EDIT RESULTS next to appropriate date
- Enter results and CONTINUE
- FINISH
- LOG OUT

Traffic lights within 5% of target within 6-15% within 16% +

Criteria	Standard (%)	Standard achieved Locally (%)	Standard Achieved Regionally (%)	Standard Met?	Status
Documented evidence that blood cultures were obtained prior to antibiotics being administered in the ED	100				
Documented evidence that serum lactate measurement obtained prior to leaving the ED	100				
Documented evidence that first intravenous fluid bolus (up to 20mls/kg) was given in 75% of cases within 1 hour of arrival	100				
Documented evidence that antibiotics were administered in 90% of cases within 2 hours of arrival	100				

Rationale for standards:

1. Interventions for severe sepsis are time critical. It is therefore crucial to make the diagnosis and perform the necessary interventions as early as possible in the patients journey.

2. Administration of antibiotics at the earliest opportunity has been shown to reduce mortality.

3. Serum Lactate is an important marker of tissue perfusion. A raised lactate level is an indicator of a poor outcome in patients with sepsis and suggests the need for early aggressive resuscitation.

Guidance for auditors:

1. Inclusion criteria should be based around the standards outlined in the International Surviving Sepsis campaign guidelines.

http://www.survivingsepsis.org/

2. Timings of interventions are a key indicator especially the time of first dose of antibiotics. The timing of antibiotics should be taken from the time the patient triggered on the criteria for sepsis (2 of the SIRS criteria).

3. Administration of fluids is a recommendation of the campaign and should be measured as part of the CPI. The timing of fluid administration should also be taken from the time the patient triggered on the criteria for sepsis (2 of the SIRS criteria).

References:

http://www.survivingsepsis.org/

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