Recognition and Early Management of Acutely ill Patients

Simulation Teaching

Year 3 Medical Students
MB BCh

2014 - 2015

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Introduction to workshop

Welcome!

Thank you for agreeing to participate in Year 3 Clinical Skills Teaching.

This workshop will introduce students to the Airway, Breathing, Circulation, Disability, Exposure (ABCDE) approach to the management of acutely ill patients. Simply put, the aim of this approach is to maintain life whilst a diagnosis is made so that definitive treatment can be given. Early understanding and adoption of this approach is a crucial part of clinical practice.

At the end of the workshop we will be asking you to complete evaluation forms. Please give as much information as you can, as we will use this data to develop the workshop.

Just as a reminder, more information about this module may be found at the Clinical Skills Resource site for tutors. The link to this site is:

http://medic.cardiff.ac.uk/clinicalskills/

We are aiming for the students to be:

Accurate       Efficient       Compassionate

Thank you again for your participation.

The Clinical Skills Team
Overall Session Aim

To describe and demonstrate the ABCDE approach to acutely ill patients

Intended learning outcomes

By the end of this workshop the students should be able to:

1. Describe the clinical assessment of each element of the ABCDE approach
2. Describe appropriate methods of oxygen and fluid delivery to acutely ill patients
3. Demonstrate, using a manikin, the bedside application of the ABCDE approach to a patient with sepsis and a patient with an acute gastrointestinal haemorrhage.
4. Demonstrate, using role play, the situation, background, assessment, and recommendation (SBAR) approach for referral of acutely ill patients
## Session Outline

<table>
<thead>
<tr>
<th>Taught Session Time: 80 minutes</th>
<th>Session Progression</th>
<th>Additional Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recognition and Early Management of Acutely ill Patients</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 minutes</td>
<td>Introduction</td>
<td></td>
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<tr>
<td></td>
<td>Introduction to session</td>
<td></td>
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<tr>
<td>10 minutes</td>
<td>Introduction to manikin</td>
<td>SimManEssential</td>
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<td></td>
<td>2x groups of 6 students</td>
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<tr>
<td>10 minutes</td>
<td>Faculty demonstration of ABCDE approach using manikin  ‘Sepsis’</td>
<td>Operation of SimManEssential</td>
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<tr>
<td></td>
<td>Faculty roles: FY1, nurse, Patient, Senior help, technician manikin operator</td>
<td>NEWS chart</td>
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<td>Prescription chart</td>
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<td>Sats probe, BP cuff, ECG leads, thermometer, glucose monitoring</td>
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<tr>
<td>5 minutes</td>
<td>Faculty to deconstruct and discuss Demonstration</td>
<td>Oxygen Mask with Reservoir bag and box of other oxygen devices</td>
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<tr>
<td></td>
<td></td>
<td>Intravenous cannula</td>
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<tr>
<td></td>
<td></td>
<td>1L bag of crystalloid</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blood giving set</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telephone</td>
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<tr>
<td>20 minutes</td>
<td>Student demonstration of ABCDE approach using manikin  ‘Sepsis’</td>
<td>Equipment as for faculty demonstration</td>
</tr>
<tr>
<td></td>
<td>12 Student roles: narrator, x2 FY1, x2 nurse, patient voice, senior help, x2 appraiser technical, x2 appraiser non-technical, prescriber</td>
<td></td>
</tr>
<tr>
<td>20 minutes</td>
<td>Student demonstration of ABCDE approach using manikin  ‘Gastro-intestinal bleed’</td>
<td>Equipment as for faculty demonstration</td>
</tr>
<tr>
<td></td>
<td>12 Student roles: narrator, x2 FY1, x2 nurse, patient, senior help, x2 appraiser, technical, x2 appraiser non-technical, prescriber</td>
<td></td>
</tr>
<tr>
<td>10 minutes</td>
<td>Questions and summary</td>
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</table>
Introduction

The General Medical Council expects that by qualification junior doctors will be able to provide immediate care in medical emergencies; specifically that the junior doctor will be able to: ‘Assess and recognise the severity of a clinical presentation and a need for immediate emergency care.’ (Tomorrows doctors 2009)

Acutely ill patients are best approached using an ABCDE assessment in conjunction with a targeted history and examination in order to reach a diagnosis so that definitive treatment can be administered.

Simulation is ideally suited as a means of acquiring the skills necessary to manage acutely ill patients as it provides an experience that is both realistic and safe.

The overall educational experience is enhanced by the fact that the faculty have many years of experience in the management of acutely ill patients.

Assessment

For the purposes of this workshop, students will be assessed on a formative basis, that is, by observation and facilitated discussion. Throughout the session it is proposed that frequent questions should be posed to the students, encouraging each student as the session progresses. The aim is to encourage further consideration of these concepts and implementation of these skills during clinical attachments.
Bedside assessment of acutely ill patients

The clinical management of acutely ill patients requires that life threatening problems are immediately addressed whilst a diagnosis is sought so that definitive treatment can be administered.

The ABCDE approach and diagnostic synthesis are complementary and simultaneous processes (see figure). Junior doctors can co-ordinate these activities by proceeding in a step wise fashion.

Figure 1 The ABCDE approach and diagnostic synthesis should be simultaneous and complementary processes. BMJ 2012;345:e5677
**Step 1: Initial assessment.**

Much of the ABCDE assessment can be accomplished within moments of arrival at the bedside by observation of the patient and their charts.

Offering a handshake is a good way to start the bedside assessment, not only will this provide clinical information about the level of consciousness, airway patency and peripheral perfusion but will also reassure a potentially frightened and distressed patient. Diagnosis requires a focussed history, examination and investigations – history from the patient may be limited and may need to be supplemented by information obtained from the bedside nurse, medical notes and relatives.

The ABCDE approach requires that concerns regarding each element of this bedside assessment have to be addressed before proceeding to the next element. For example, an obstructed airway must be opened before breathing is assessed.

**Step 2: Airway assessment**

Complete airway obstruction is very rare (Patient usually dies within minutes) but partial airway obstruction is quite common and can be recognised by noisy breathing such as snoring or gurgling.

The commonest cause of a partially obstructed airway is a reduced level of consciousness (Due to reduced airway muscular tone, loss of protective airway reflexes, principally the gag and cough reflexes, retention of oropharyngeal secretions and tongue mal-position). Level of consciousness can be rapidly assessed using the AVPU method - (Alert, responds to Voice, responds to Pain, Unresponsive). If the patient can talk then this usually implies that the airway is safe.

A partially obstructed airway can be relieved with simple manoeuvres such as jaw thrust or a chin lift. Airway adjuncts such as oropharyngeal or nasopharyngeal devices can also be useful.

**Step 3: Breathing assessment.**

Begin by counting the respiratory rate, breaths per minute (bpm). Increased respiratory work commonly accompanies acute illness as a result of an increased metabolic rate and oxygen consumption. This may lead to respiratory distress, signs
of which include: inability to complete sentences, high respiratory rate, diaphoresis, accessory muscle use and cyanosis. Focussed clinical examination including tracheal palpation, percussion and auscultation may uncover the diagnosis. (Tracheal deviation-tension pneumothorax, hyper-resonance- tension pneumothorax, dull percussion note-pleural effusion/empyema, wheeze, silent chest -acute severe asthma, left ventricular failure, diminished or bronchial breath sounds-pneumonia)

High flow oxygen should be administered to all acutely ill patients the effects of therapy should be assessed using pulse oximetry and the target oxygen saturations should be 94-98%. The appropriate oxygen delivery device to use is a mask with a reservoir bag. It is vital that the reservoir is kept inflated at all times this is usually achieved by setting the flow rate of oxygen to 15 L/min. This mask will usually deliver an inspired oxygen concentration (FiO₂) of 60-85%.

**Step 4: Circulatory assessment**

Begin by assessing the radial pulse, beats per minute (bpm), rhythm and character. Attach cardiac monitoring if available. Note the blood pressure. Clinical signs that are common to hypovolaemic, obstructive and cardiogenic shock include: confusion or agitation, cold extremities, reduced capillary refill, tachycardia, absent or small volume peripheral pulses, hypotension and oliguria. The jugular venous pulse may be useful in distinguishing between hypovolaemic states (low) and cardiogenic or obstructive shock (elevated). Circulatory features of septic shock include warm peripheries (vasodilatation) and a bounding pulse. With the exception of cardiogenic shock, complicated by pulmonary oedema, the management of shocked patients invariably requires the administration of intravenous fluid.

Peripheral cannulae can usually be inserted into antecubital fossa or external jugular veins whilst central lines can be inserted into internal jugular, subclavian and femoral veins. Very rarely venous access may require a cut-down approach or an intraosseous approach may be needed if venous access cannot be obtained at all.

Sizes of peripheral cannula are determined by gauge (12 Largest, 14, 16, 18, 20, 22, 24 smallest). Poiseuille’s law states that flow is inversely related to the length of the IV catheter and directly related to its radius to the fourth power. Therefore flow fastest down short cannula with large diameter. Therefore two 16-gauge lines
are recommended for resuscitation. Fluid choice as per NICE IV Fluid Guidelines 2013. When treating haemorrhage order urgent plasma depleted blood.

**Step 5: Disability assessment**

Disability refers to neurological status, relevant clinical examination would include level of consciousness (LOC), focal and localising neurological signs, pupillary reflexes and signs of Meningism. LOC can be rapidly assessed using Alert, responds to Voice, responds to Pain, Unresponsive (AVPU).

**Step 6: Exposure assessment**

Exposure is a prompt to complete the examination, being mindful of environmental temperature and potential adverse effects of cooling (shivering causes increased metabolic work and contributing to further cardiovascular decompensation). Both body temperature and bedside blood glucose levels should be assessed.

**Step 6: Diagnostic synthesis, investigation and definitive management**

Once a diagnosis is obtained and/or the causes of deterioration understood, definitive treatment can be started. This may require transfer of the patient to the operating theatre, interventional cardiology laboratory, endoscopy suite, intensive care unit or high dependency unit. Regardless, transfer will need to be conducted by trained personnel and the proposed management carefully communicated to the patient and those close to the patient.
Referral of acutely ill patients using the SBAR approach

Following the bedside assessment it is likely that the junior doctor will need to discuss further management with colleagues. The NHS Institute for Innovation and Improvement has recommended the Situation, Background, Assessment and Recommendation (SBAR) approach for such communication (see table 1)

Table 1    SBAR

<table>
<thead>
<tr>
<th>S:Situation</th>
<th>Identify yourself (name, role, location); confirm the identity of the person you are speaking to; identify the patient (name, age, sex, and location)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>State the reason you are calling and the urgency—such as “this is urgent as the patient has a systolic blood pressure of 90 mm Hg …………..”</td>
</tr>
<tr>
<td>B:Background</td>
<td>Relate the history (date of admission, diagnosis, and management); describe the current interventions</td>
</tr>
<tr>
<td>A:Assessment</td>
<td>State what you think is happening—such as “I think the patient has septic shock secondary to pneumonia”</td>
</tr>
<tr>
<td>R:Recommendation</td>
<td>State the request—such as “I need you to see this patient urgently; please come to the ward immediately”</td>
</tr>
</tbody>
</table>

Notes on the management of sepsis

Early anti-biotic intervention is crucial in the management of sepsis.

If a patient has a confirmed or suspected infection and has 2 or more of the below:-

- Signs and symptoms of infection from their NEWS chart
  1. Temperature > 38.3°C or < 36°
  2. Heart rate > 90bpm
  3. Respiratory rate > 20 / min
  4. Acutely altered mental state

- or signs from their blood tests:
  5. White cell count >12 or <4 x 10^9
  6. High glucose > 12 g/dL

Begin the SEPSIS 6!

Sepsis 6

1. High flow oxygen via mask with reservoir bag
2. Take blood cultures (and other relevant cultures e.g. Sputum sample)
3. Administer broad spectrum antibiotics as per hospital policy
4. If hypotensive give 500 ml of crystalloid (containing sodium 130-154 mmols) over 15 minutes (NICE IV Fluid Therapy Guidelines 2013)
5. Measure serum lactate (may be raised if septic) and haemoglobin
6. Measure hourly urine output (consider catherisation)

Call senior help
Aim to administer relevant IV antibiotics within one hour of arriving on the scene

Notes on the management of acute gastrointestinal haemorrhage

1. High flow oxygen via mask with reservoir bag
2. Gain IV access
3. Administer IV fluids as per NICE IV Fluid Therapy Guidelines 2013
4. Order urgent plasma depleted blood
5. Call senior help
6. Correct coagulopathy and haemostasis (endoscopic, surgical or angiography and selective arterial embolisation)

Useful resources


10. SBAR tool:

   http://www.institute.nhs.uk/safer_care/safer_care/sbar_handover_films.htm l

   http://www.institute.nhs.uk/safer_care/safer_care/Situation_Background_Assessment_Recommendation.html