‘ABCDE’: the assessment of the sick patient

Continuing with his series on practical procedures, Phil Jevon describes how dental care professionals should adopt the ‘ABCDE’ approach to assessing the acutely sick patient.

The Resuscitation Council (UK) (2006) recommends that dental staff should follow the ‘ABCDE’ approach (Table 1) when assessing (and treating) the sick patient. This will help to ensure that critical illness is promptly identified and appropriately managed (Jevon, 2009).

The aim of this article is to understand the ‘ABCDE’ approach to the assessment of the acutely sick patient.

Background
In the majority of out-of-hospital cardiopulmonary arrests, victims have displayed signs of critical illness prior to collapse (Jevon, 2009). These adverse signs usually reflect compromised respiratory, cardiovascular and neurological functions (Nolan et al, 2005); for example, tachypnoea (respiratory rate > 20 breaths per minute), tachycardia (heart rate > 100 beats per minute), hypotension (systolic blood pressure < 90 mmHg), chest pain (possibly indicating a heart attack) and altered level of consciousness (Resuscitation Council UK, 2006; Jevon, 2009).

‘ABCDE’ approach
Following the Resuscitation Council (UK)’s systematic ‘ABCDE’ approach to the assessment of the critical ill patient will help dental nurses identify critical illness. The main aim of initial interventions and management should be seen as a ‘holding measure’ to keep the patient alive while awaiting the arrival of the emergency services. The early recognition and effective treatment of critical illness, together with timely referral to A&E, will improve the chance of the patient surviving.

‘ABCDE’ approach: guiding principles
The guiding principles of the ‘ABCDE’ approach are to:

- Follow a systematic approach, based on airway, breathing, circulation, disability and exposure (ABCDE) to assess and treat the critically ill patient
- Administer oxygen if the patient is ill
- Undertake a complete initial assessment, re-assessing regularly. If life-threatening problems are identified, they should be treated first before moving onto the next part of assessment
- Evaluate the effects of interventions/treatment
- Recognize when it is necessary to call 999 for an ambulance
- Communicate effectively.


Table 1. ABCDE approach

<table>
<thead>
<tr>
<th>A</th>
<th>Airway</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Breathe</td>
</tr>
<tr>
<td>C</td>
<td>Circulation</td>
</tr>
<tr>
<td>D</td>
<td>Disability</td>
</tr>
<tr>
<td>E</td>
<td>Exposure</td>
</tr>
</tbody>
</table>

(Resuscitation Council UK, 2006; Jevon, 2009).

Initial approach to patient assessment
The initial approach includes ensuring safety, talking to the patient, observing the patient (and attaching a vital signs monitoring system).

Safety
If necessary, take steps such as hand washing to minimize the risk of cross infection. Ensure the environment around the patient is safe. Remove any hazards in the dental practice such as dental equipment around the chair.

Simple questioning
Ask the patient a simple question and evaluate the response/lack of response.

- A normal verbal response implies that the patient has a clear airway, is breathing and has cerebral perfusion
- An inappropriate response may indicate that the patient is confused, which could be an adverse sign, e.g. a common sign associated with hypoglycaemia is confusion
- A breathless patient who can only talk in short sentences is suggestive of...
respiratory distress

- Failure to respond is an indicator of serious illness.
  (Resuscitation Council UK, 2006; Jevon, 2009).

**General appearance**

Note the patient's general appearance such as his colour (pink, pale, cyanosed), whether he appears comfortable or distressed, content or concerned (Jevon, 2009).

**Vital signs monitoring**

If available, attach a vital signs monitoring system, e.g. pulse oximetry (Figure 1) (Resuscitation Council UK, 2006).

**Airway**

Follow the look, listen and feel approach to assess the airway. If the patient is talking, he will have a patent airway. In partial obstruction, air entry is diminished and often noisy. In complete airway obstruction, there are no breathe sounds at the mouth or nose.

**Look**

Look for the signs of airway obstruction. Airway obstruction can result in paradoxical chest and abdominal movements (‘see-saw’ respiratory pattern) and the use of the accessory muscles of respiration. Look at the patient's colour. Central cyanosis, for example in the lips, is a late sign of airway obstruction (Jevon, 2009).

**Listen**

Listen for signs of airway obstruction. Noisy breathing indicates partial airway obstruction. The character of the noise provides an indication to the location and cause of the obstruction:

- Gurgling: fluid such as vomit and secretions present in the mouth or upper airway
- Snoring: displaced tongue partially obstructing the pharynx
- Crowing: laryngeal spasm
- Inspiratory stridor: ‘croaking respirations’ due to partial upper-airway obstruction, e.g. foreign body, laryngeal oedema
- Expiratory wheeze: noisy musical sound caused by turbulent flow of air through narrowed bronchi and bronchioles, which is more pronounced on expiration; causes include asthma and chronic obstructive pulmonary disorder (COPD).
  (Smith, 2003; Jevon, 2009).

**Feel**

Feel for signs of airway obstruction by placing your face or hand in front of the patient's mouth to determine whether there is movement of air (Jevon, 2009). Feeding for signs of breathing is commonly undertaken when the patient is unresponsive and an attempt is made to ascertain whether the patient is breathing.

**Treatment of airway obstruction**

Is it necessary to call 999 for an ambulance?

Once airway obstruction has been identified, treat appropriately depending on the cause. Simple interventions such as suction, lateral position and insertion of oropharyngeal airway are often effective. Administer oxygen as appropriate. If the patient has a foreign body airway obstruction and is unable to cough effectively, start with back slaps.

**Breathing**

Follow the look, listen and feel approach to assess breathing and to detect signs of respiratory distress or inadequate ventilation (Smith, 2003).

**Look**

Look for the general signs of respiratory distress—such as anxious appearance, tachypnoea, sweating, pallor/cyanosis—using accessory muscles of respiration, abdominal breathing and needing to be in an upright position to breathe (Jevon, 2009).

Count the respiratory rate over 1 minute. The normal respiratory rate in adults is approximately 12–20 breaths per minute (Resuscitation Council UK, 2006). Tachypnoea may indicate critical illness and is usually one of the first indicators of respiratory distress (Smith, 2003). However, it is a normal finding after exercise, e.g. a patient running up the stairs in a dental practice.

Check if the chest is moving equally on
both sides during breathing. Unilateral movement of the chest suggests a problem that could compromise breathing, e.g. pneumothorax (punctured lung).

If pulse oximetry is available (usually only in dental practices that use sedation), observe the oxygen saturation ($\text{SpO}_2$) reading (normal is usually considered to be 97–100%; a low $\text{SpO}_2$ could indicate respiratory distress) (Jevon, 2010).

**Listen**
Listen to the patient's breathing. Normal breathing is quiet. Abnormal sounds include stridor and wheeze. 'Rattling airway noises' indicate secretions in the airways (often because the patient cannot cough sufficiently or cannot breathe in deeply) (Smith, 2003).

**Treatment of compromised breathing**
Is it necessary to call 999 for an ambulance?
Ensure the patient has a clear airway; assist him into an upright position. If lying flat in the dental chair, the patient will usually like to be sat up and allowed to swing his legs around over the side of the chair. Administer oxygen as appropriate. If able, treat the underlying cause, e.g. ventolin inhaler if the patient is having an asthma attack.

**Circulation**
Following the look, listen and feel approach to assess circulation.

**Look**
Look at the colour of the patient's skin. If the patient is in shock, the skin will usually be pale.

Look for other signs of a poor cardiac output, e.g. reduced level of consciousness (Smith, 2003).

Measure the capillary refill time. A prolonged capillary refill time (> 2 seconds) indicates reduced skin perfusion which may indicate the presence of circulatory shock, although other factors such as cool ambient temperature and old age can also cause a prolonged capillary refill time (Resuscitation Council UK, 2006).

**Feel**
Feel the temperature of the patient's hands/fingers. Cool peripheries suggest poor peripheral perfusion, which could indicate circulatory shock.

Check the radial pulse (rate, volume and rhythm). A tachycardia may indicate illness, though it can also be a normal finding, e.g. anxiety, exercise and pain. A patient in shock will usually have a rapid weak pulse. A patient who faints and has a slow pulse and low blood pressure may indicate vaso vagal syncope. A patient on a beta-adrenoceptor blocking drug, e.g. atenolol, will usually have a slow heart rate, even less that 60 beats per minute (this is often the desired affect of the treatment).

**Treatment of compromised circulation**
Is it necessary to call 999 for an ambulance?
If the patient is in anaphylactic shock, call 999 for an ambulance, lie the patient flat and elevate legs (unless breathing is worsened), and administer oxygen; adrenaline will need to be administered (Resuscitation Council UK, 2006; Jevon, 2009).

If the patient has central chest pain, call 999 for an ambulance. Oxygen, aspirin 300 mg and sublingual glyceryl trinitrate may need to be administered (Resuscitation Council UK, 2006).

**Disability**
Assessment of disability involves evaluating cerebral (brain) function (Resuscitation Council UK, 2006). It is important to have already assessed ABC (above) because hypoxaemia (low oxygen levels in the blood) and hypotension can cause altered level of consciousness.

Assess the patient's level of conscious using the AVPU scale (Table 2).
If the patient has an altered level of consciousness, the patient will be assessed using the AVPU scale.

### Table 2. AVPU

<table>
<thead>
<tr>
<th>A – Alert</th>
<th>V – Responds to vocal stimuli</th>
<th>P – Responds only to painful stimuli</th>
<th>U – Unresponsive to all stimuli</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alert</td>
<td>Responds to vocal stimuli</td>
<td>Responds only to painful stimuli</td>
<td>Unresponsive to all stimuli</td>
</tr>
</tbody>
</table>

consciousness, try to establish the cause. Causes of altered level of consciousness include alcohol, drugs and hypoglycaemia (low blood sugar). If able, undertake bedside glucose measurement to exclude hypoglycaemia (low blood sugar).

Examine the pupils (size, equality and reaction to light) (Resuscitation Council UK, 2006). Pupils that are unequal usually indicates a serious cerebral problem. Pin-point pupils usually indicate opiate administration.

Treatment of altered conscious level
Is it necessary to call 999 for an ambulance?
If the patient has an altered level of consciousness, consider placing the patient in the recovery (lateral) position (Figure 2) to minimize the risk to the airway. Administer glucose if hypoglycaemia is confirmed (ideal) or suspected (know diabetic). Administer oxygen if appropriate.

Exposure
It may be necessary to undress the patient, taking care to maintain his dignity and to avoid hypothermia, in order to undertake a thorough examination and ensure important details are not overlooked (Smith, 2003). In particular, the examination should concentrate on the part of the body which is most likely contributing to the patient’s critically ill status, e.g. in suspected anaphylaxis, observe the skin for urticaria (Figure 3) (Jevon, 2010).

Conclusion
The Resuscitation Council (UK) recommends that dental staff should follow the ‘ABCDE’ approach when assessing (and treating) a critically ill patient. In this article, the ‘ABCDE’ approach has been described. The approach encourages early recognition of the ‘sick’ patient to pre-empt a medical emergency by recognizing an abnormal breathing pattern, skin colour or pulse rate and suggests that appropriate action be taken or help summoned, prior to a patient actually collapsing. This article has also emphasised the importance of calling 999 for an ambulance where appropriate.

Figure 3. Urticaria: commonly associated with an allergic reaction. It is often one of the first signs that a patient is going into anaphylaxis.

KEY INFORMATION

KEY POINTS

- Patients suffering cardiopulmonary arrest often have adverse signs prior to collapse.
- Identification of these adverse signs and effective management may prevent cardiopulmonary arrest.
- Follow the resuscitation Council UK’S ABCDE approach when assessing a sick patient.
- When required, call 999 for an ambulance.