Airway, Breathing, Circulation, Disability and Exposure (ABCDE) Approach — Initial Assessment and Treatment

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The ABCDE approach is a systematic approach that is applicable to all emergency cases and is useful in the immediate assessment and management of trauma and critically ill patients. High-quality ABCDE skills are required by healthcare professionals and their team members to save valuable time and to focus team performance on tackling causality. This article provides an overview of initial patient assessment and treatment with the ABCDE approach and discusses current evidence and the principles of the ABCDE approach relevant to emergency medicine.

Overview of the ABCDE Approach

The ABCDE approach can be used at accident sites outside the hospital or in the emergency department. The ABCDE approach is used to:
Provide life-saving treatment
Assess the patient and prepare a treatment algorithm
Break down complex clinical situations into manageable smaller and simpler parts
Establish situational awareness among health-care providers
Buy time until a final diagnosis is established and a definitive treatment plan is formulated

Current Evidence in Favor of the ABCDE Approach

The ABCDE approach is supported by expert consensus and is widely accepted by emergency doctors, critical care specialists, and traumatologists. A systematic approach such as the ABCDE approach has been proven to be time-saving and life-saving. It can help the treating physician to prioritize the different problems a polytrauma patient might have, and treat the immediate life-threatening problems first. Therefore, the uniform adoption of the ABCDE approach is recommended and has been implemented in most hospitals in the United States.

Who needs ABCDE?

All patients presenting with polytrauma, acute injury, or those who are critically ill should undergo an ABCDE assessment and treatment algorithm. Fortunately, the clinical signs of critical illness are the same regardless of the cause or etiology. Therefore, the exact knowledge of the underlying cause is not necessary for initial treatment.

The ABCDE approach has been proven to be valuable in detecting the early signs of impending cardiac arrest and can prepare the emergency doctor to deal with cardiac arrest promptly. In fact, a cardiac arrest might be prevented if the ABCDE approach is followed. For instance, if adequate breathing is checked and secured in a polytrauma patient with tension pneumothorax, cardiac arrest can be prevented in such a patient.

The ABCDE approach should be also used in post-resuscitation care after the successful resuscitation of the patient and the return of spontaneous circulation.

If the patient is unresponsive, has absent or abnormal breathing, and is pulseless, a cardiac arrest should be suspected. The ABCDE approach is not recommended for patients who have a cardiac arrest. In that case, the ABCDE approach should NOT be followed. Patients in cardiac arrest should receive cardiopulmonary resuscitation and professional emergency care should be sought.

Principles of the ABCDE Approach

In most cases, an assessment algorithm is performed in a sequential manner in medicine. However, the ABCDE approach is an exception. Some experts recommend that the ABCDE approach should be followed simultaneously and continuously in the management of the polytrauma or critically ill patient prior to the establishment of a definite diagnosis.

In most cases, the ABCDE approach might be more valuable in saving the life of the patient than reaching a definitive diagnosis and providing etiology-specific treatment.

Therefore, understanding the principles of the ABCDE approach is valuable to the treating physician as it can buy time until a definitive diagnosis is reached.
The ABCDE approach stands for **Airway, Breathing, Circulation, Disability, and Exposure**. Airway problems, which are often life-threatening, should be assessed and treated before addressing other aspects of the ABCDE approach. Breathing problems should be assessed and treated next and so on. At first, this might seem like a sequential approach, however, it is important to emphasize a point here.

If at some point during this approach a problem in circulation is noted while at the disability assessment, it is crucial to return to the assessment of the airway and breathing before the circulatory failure is attributed to pure circulation problems. This explains the statement that ‘the ABCDE approach should be followed simultaneously and continuously’.

Once 1 cycle of the ABCDE approach is completed, the assessment should be repeated until the patient is stable. If the patient deteriorates after becoming stabilized, the ABCDE approach should be followed again from the beginning.

**What is the ABCDE Approach?**

As we have already established, the ABCDE approach is a **systematic approach to the assessment and treatment** of the airway, breathing, circulation, disability, and exposure of the injured or critically ill patient.

**Airway assessment and treatment**

The airway can be checked by inspection of the patient’s **head and neck**, checking **the patient’s voice**, and during the auscultation of the chest while assessing **the breathing** of the patient. To maintain the patency of the patient’s airway, the head should be tilted, and the chin should be lifted up. Suctioning of the airway is useful in removing any secretions, blood or vomit material, or any foreign body that might be obstructing the airway. For conscious patients, 5 back blows alternated with 5 thrusts on the abdomen assist in the removal of the obstruction. If the patient is unconscious, cardiopulmonary resuscitation is recommended with the help of teammates.

High-flow oxygen therapy and/or intubation might be needed to secure the airway of the patient. Intubation might be oropharyngeal or nasopharyngeal. A patient with suspected basal skull fracture should not undergo nasopharyngeal intubation.

**Breathing assessment and treatment**

The respiratory rate should be checked and normally ranges from 12–20/min. Chest wall movements should be assessed. Symmetric chest wall movements and expansions are expected. Chest percussion is useful in excluding hemothorax ‘dullness to percussion’ or pneumothorax ‘hyper-resonance to percussion’. Cyanosis, any distension in the neck veins, and lateralization of the trachea should be assessed. Lung auscultation is useful in the assessment of breathing in injured patients. Pulse oximetry with a result of 97–100% should be considered as normal.

**Treatment of breathing problems include:**

- Seating the patient comfortably
- Rescue breaths if needed
- Inhalable medications to alleviate bronchoconstriction if needed
- Bag-mask ventilation to improve peripheral oxygenation
- Decompression of a tension pneumothorax if suspected or confirmed
Circulation assessment and treatment

Skin color should be checked as it is a good indicator of adequate circulation. Sweating is a sign of compromised circulation. Changes in skin color, sweating, and low level of consciousness indicate decreased perfusion. The capillary refill time should be less than 2 seconds. The normal pulse rate in an adult is from 60–100/min. The patient might have tachycardia if there is pain, bleeding, or dehydration. Blood pressure should be checked at this stage to exclude hypotension. Electrocardiography monitoring is also indicated in the assessment of the circulation.

Note that if the patient develops cardiac arrest, the ABCDE approach should be discontinued and cardiopulmonary resuscitation approach should be initiated instead.

Treatment of an impaired circulation includes stopping ongoing bleeding, the elevation of the legs to improve cerebral blood perfusion, securing intravenous access, and administration of isotonic saline.

Disability assessment and treatment

Disability can be assessed using the AVPU approach:

- Alert
- Voice-responsive
- Pain-responsive
- Unresponsive

If one is experienced with the Glasgow Coma Scale, it should be used and documented in case of traumatic brain injury. Limb movements, pupillary light reflexes, and blood glucose levels should be determined as part of the disability assessment.

<table>
<thead>
<tr>
<th>Patient Case</th>
<th>Treatment</th>
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<tbody>
<tr>
<td>Impaired level of consciousness</td>
<td>Airway, breathing, and circulation problems should be re-assessed and treated properly</td>
</tr>
<tr>
<td>Patent airway, good breathing, and normal circulation</td>
<td>Look for other causes of an impaired level of consciousness such as poisoning or traumatic brain injury</td>
</tr>
<tr>
<td>Hypoglycemic</td>
<td>Glucose in the form of dextrose should be administered</td>
</tr>
<tr>
<td>Capable of oral intake</td>
<td>Simple carbohydrates might be administered in an oral form</td>
</tr>
</tbody>
</table>

Exposure assessment and treatment

Finally, the treating physician should expose the skin of the patient properly to identify trauma signs, blood loss, skin rashes, marks of needles, etc. in order to exclude any other hidden injuries and appropriately measure and maintain the patient’s temperature within normal limits. Hypothermia should be avoided whenever possible. Once the patient is stable, a definitive diagnosis should be established and specific treatment should be started.

The ABCDE approach is a definite and structured tool to manage patients in acute and surgical emergencies both in prehospital first aid and in-hospital management. It assists in the assessment of the seriousness of the condition and in securing the life of the patient.

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