Basal algorithms in emergency medicine – ABCDE approach

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2023 – 2024

What? Who? Where? and How?

- Critically ill patient
- Deteriorating patient

What can happen to me?

1. I need to know, how to recognise deteriorating patient

   I need to know what to do, then

or

2. I need to know what to do, if they call me to help with deteriorating patient

- One thing is sure:

DO NOT PANIC

Use ABCDE approach

1st scenario
you are not intensivist

- The question is:

How to find and/or recognise deteriorating patient?

- Make sure your team is using Early Warning Score.

- But it is your responsibility to instruct the nurses **how often** they should do **observations** on each patient

EWS (this is for the nurses)

Score	3	2	1	0	1	2	3
Breath rate/min	≤8		9–11	12–20		21–24	≤25
Oxygen saturation (%)	≤91	92–93	94–95	≥96			
Supplemental oxygen		Yes		No			
Temperature	≤35.0		35.1–36.0	36.1–38.0	38.1–39.0	≥39.0	
Systolic BP (mmHg)	≤90	91–100	101–110	111–219			≥220
Heart rate (beats/min)	≤40		41–50	51–90	91–100	111–130	≥130
Level of consciousness				Alert			V,P or U

Call you or MET if total score is > 5, or if one system scores 3

Patient is not all right if 2 of 3:

qSOFA (quick Sepsis related Organ Failure Assessment):

RR > 22/min

sBP < 100 mmHg

or if any one from following:

A. Airway obstruction/impaired airway protection (coma)

B. Respiratory arrest, or RR < (5) 8 or RR > 22 (30), or SpO2 < 90 % on FiO2 > 0,5, or pO2 < 8,0 kPa on FiO2 > 0,5, or if pCO2 is > 6,5 kPa, or if pH < 7,3

C. Cardiac arrest, or HR < 40 or > 130, or sBP < 90, or pH < 7,3 or BE < -4 or lactate > 2 mmol/l or UO < 0,5 ml/kg/hr

D. GCS < 12 or GCS drop of > 2 points or recurrent or prolonged seizures are present

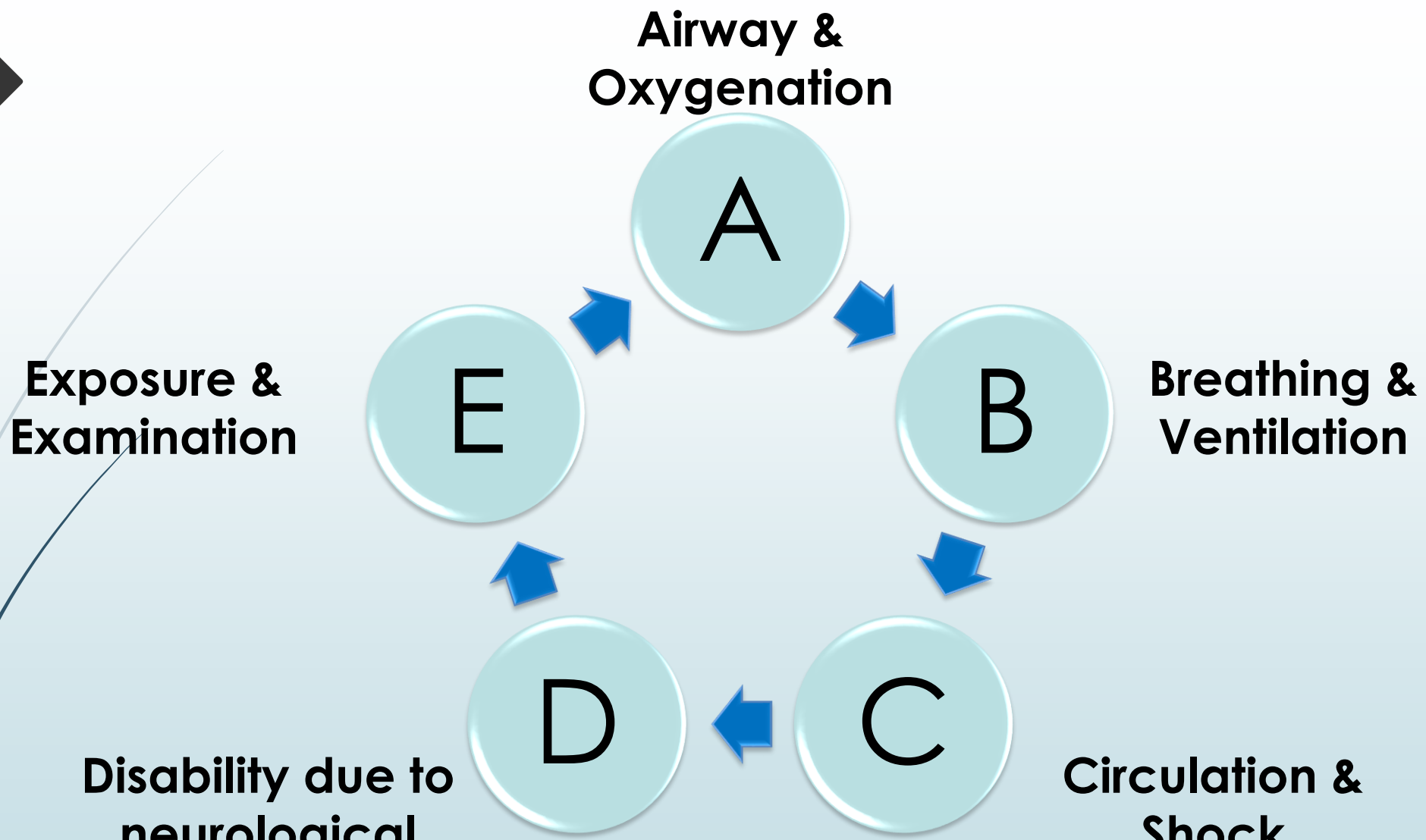
E. You are seriously worried about the patient

2nd scenario
you are the intensivist

- The question is:

How to manage critically ill patient?

- **Just follow ABCDE approach:**
  - systematic approach
  - the symptoms are the same
    - anyone can use it
      - everywhere


Airway & Oxygenation
A
B
Breathing & Ventilation
C
Circulation & Shock management
D
Disability due to neurological deterioration
E
Exposure & Examination

ABCDE approach

- Each stage of the ABCDE approach involves:
  - clinical assessment
  - Investigations
  - Interventions
- Problems are addressed as they are identified and are treated immediately.
- The patient is re-assessed regularly to monitor their response to treatment.
- The aim of the ABCDE approach is to

  improve the clinical outcome of unwell patients,

  regardless of the definitive diagnosis.

ABCDE = assessment and ACTION

A. Airway adjuncts/recovery position

B. Oxygen mask/ventilation/chest drains

C. Fluids/inotropic drugs and vasopressors/haemostasis (angio-suit, surgery, extension, tamponade…)

D. Neurological assessment/hypoglycaemia/injury/trauma (CT…)

E. Exposure & Examination (to find anything abnormal: bleeding, colour change, irregularities…)

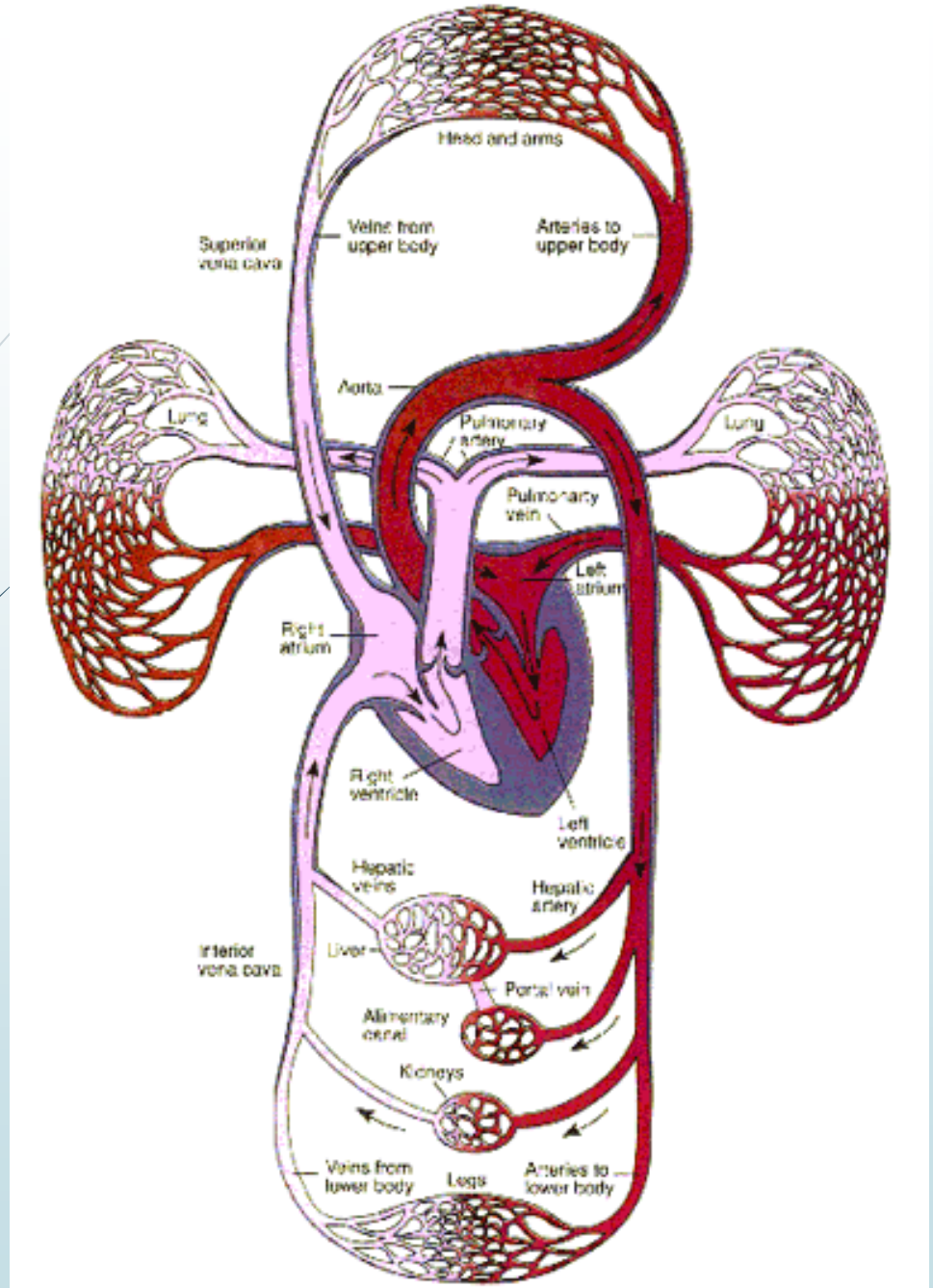
Critical situations

- Cardiac arrest
- Shock
- Collapse
- Seizures
- Diabetes emergencies
- Acute intoxications

Shock

Definition

- Syndrome
  - decreased effective blood volume
  - decreased capillary perfusion (flow)
  - cells and organs dysfunction
- Shock is a life-threatening condition due to lack of sufficient blood or oxygen flow to the tissues
- Factors: blood volume – heart – vessels – flow


Head and arms
Superior vena cava
Veins from upper body
Arteries to upper body
Aorta
Lung
Lung
Pulmonary artery
Pulmonary vein
Left atrium
Right atrium
Right ventricle
Left ventricle
Hepatic veins
Hepatic artery
Inferior vena cava
Liver
Portal vein
Alimentary canal
Kidneys
Veins from lower body
Legs
Arteries to lower body

1. Hypovolemic shock

- Loss of fluids from the body

  - bleeding, vomiting, diarrhoea…

- Internal losses

  - gut inflammation, gut obstruction…

2. Distributive shock

- Septic shock
- Anaphylactic shock
- Spinal shock…

3. Cardiogenic shock

- heart attack
- arrhythmia
- other:
  - sudden valvular disease
  - rupture of the heart or part of the heart…

4. Obstructive shock

- pneumothorax
- heart tamponade
- lung embolism

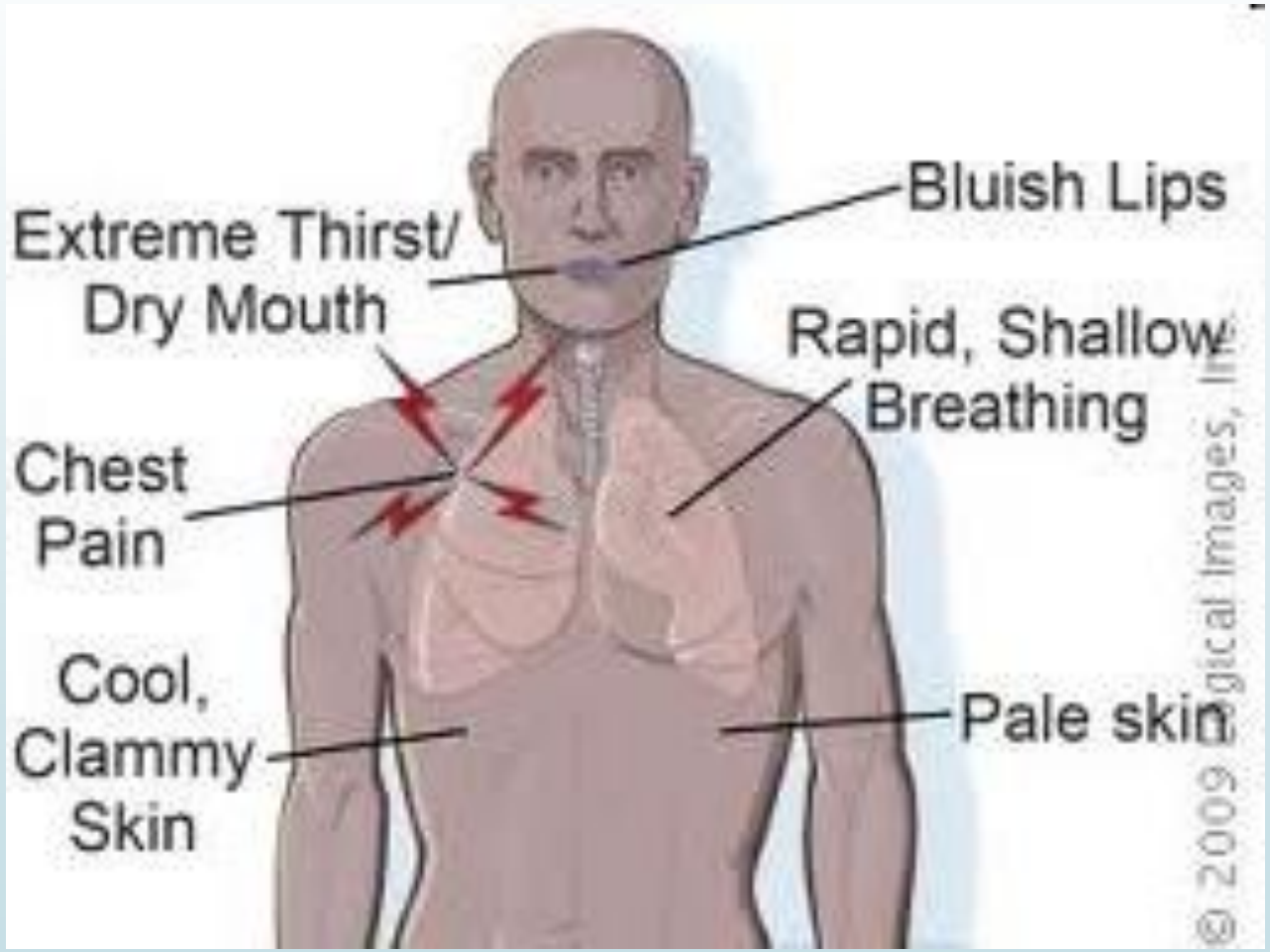
Shock – what happens

- low tissue perfusion
- (low blood pressure)
- organ damage

Shock – signs

- **The skin** is cool and clammy. It may appear pale or gray. Mucous membranes are dry.
- **The pulse** is weak and rapid.
- **Breathing** may be slow and shallow, or hyperventilation (rapid or deep breathing) may occur. Blood pressure is below normal.
- **The eyes** lack luster and may seem to stare. Sometimes the pupils are dilated.
- **The person may be conscious or unconscious.** If conscious, the person may feel faint or be very weak or confused. Shock sometimes causes a person to become overly excited and anxious.

Shock


Extreme Thirst/
Dry Mouth
Bluish Lips
Rapid, Shallow
Breathing
Chest
Pain
Cool,
Clammy
Skin
Pale skin
© 2009 Medical Images, Inc.

Action

- Get patient in bed, do Trendelenburg position
- Give oxygen treatment
- Put on monitor (ECG/HR, SpO_2, NIBP)
- Regularly check RR, temp, colour of skin, level of consciousness
- Give i. v. fluids (balanced crystalloids) warmed
- Keep warm (cover…)
- Find out the source/type and treat

Fainting, syncope

Fainting (syncope)

- Is a sudden loss of consciousness from a lack of blood flow to the brain.
- Victims usually wake up quickly after collapsing.
- Management is simple, usually requiring little more than letting the victim recover while lying flat.
- More important than immediate management is treating the cause of the fainting.

Causes

- Dehydration
- Emotions
- Health problems
- Orthostatic hypotension

- Fainting occurs when the blood supply to your brain is momentarily inadequate, causing you to lose consciousness. This loss of consciousness is usually brief.
- Fainting can have no medical significance, or the cause can be a serious disorder.
- Therefore, treat loss of consciousness as a medical emergency until the signs and symptoms are relieved and the cause is known.

If you feel faint:

- Lie down or sit down.
- If you sit down, place your head between your knees.

Action

- Get patient in bed, do Trendelenburg position
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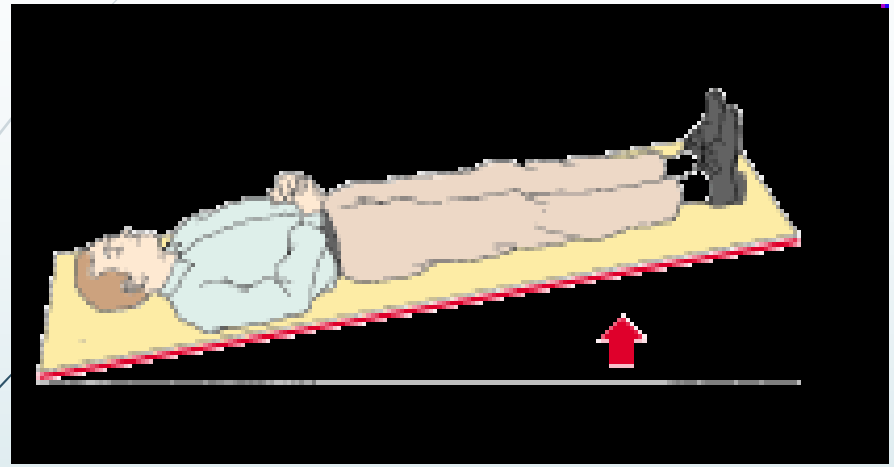
- Give i. v. fluids (balanced crystalloids) warmed
- Keep warm (cover…)
- Record 12 lead ECG

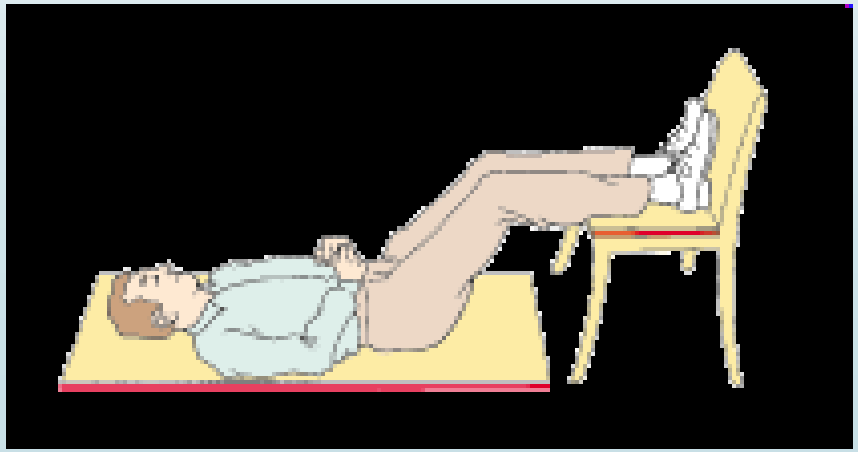
Positions of patient in emergency

- Unconsciousness: recovery position
- Shock: horizonal, head down/legs up
- Breathing problems: seated position
- Backbone trauma: horizontal

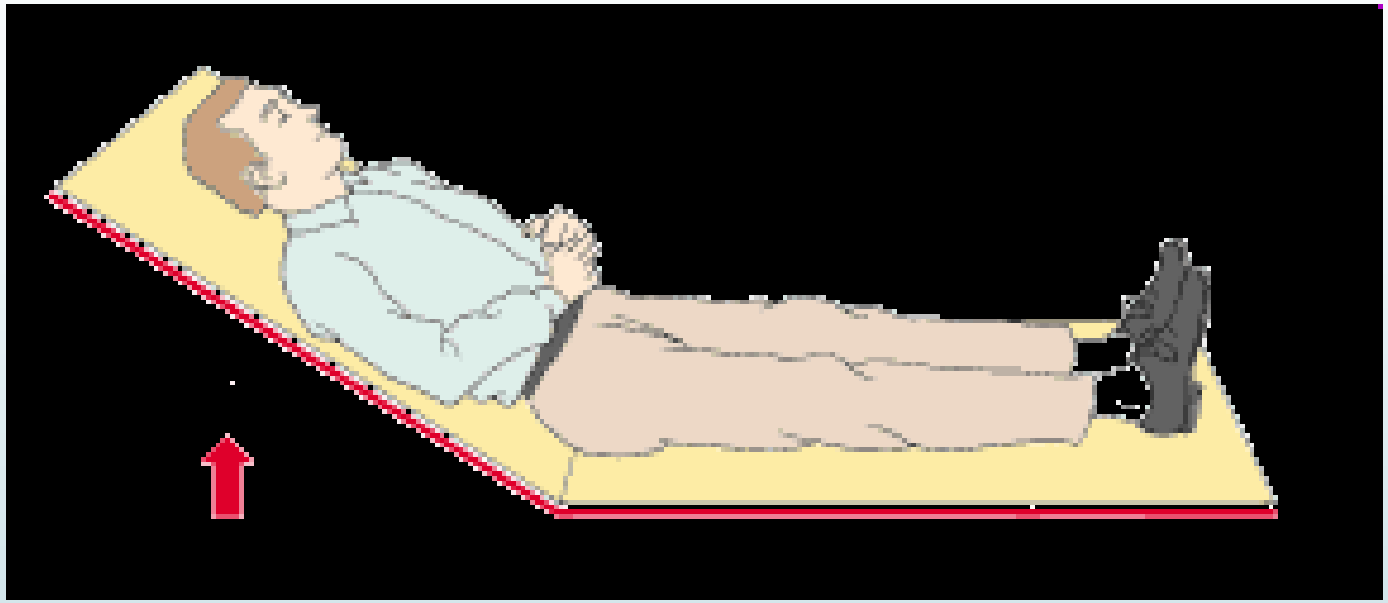
Recovery

Trendelenburg

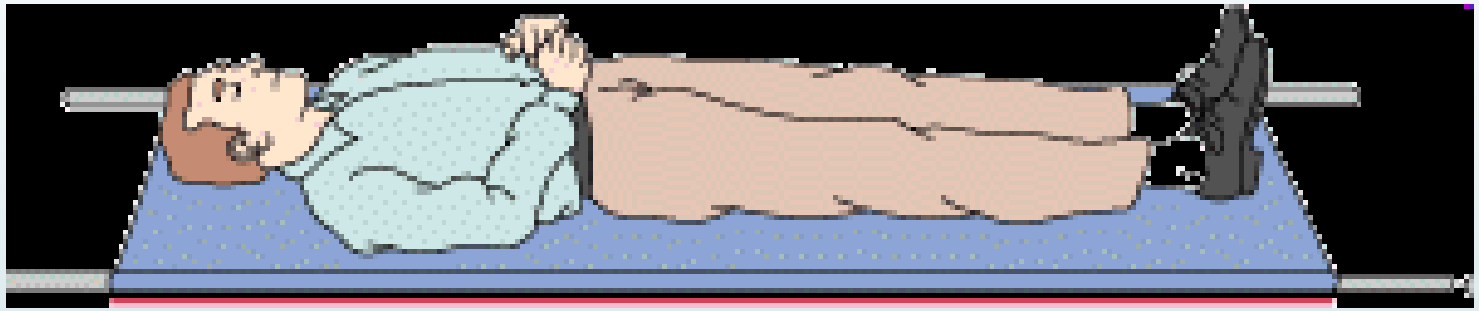




Dyspnoe



Backbone trauma



Seizures

- A seizure results from a sudden rush of abnormal electrical signals in the brain.
- Symptoms may range from a minor daze to uncontrollable muscle spasms **(convulsion).**
- In some cases, the victim may even lose consciousness. A seizure can be caused by a high fever, head injury, drug reaction, or condition such as epilepsy.

Causes

- Epilepsy
- Brain tumor
- Brain trauma
- Intoxications

1. Protect the Head

- Help the victim to the floor if he or she begins losing muscle control. Turn the person on his or her side to prevent choking.
- Protect the victim's head from injury by placing something soft, such as folded clothes, beneath it, and by moving objects away from the victim.
- **DON'T** cause injury by restraining the person or by placing anything in his or her mouth.

2. Preserve Dignity

- Clear away bystanders.
- Reassure the victim, who may be confused, drowsy, or hostile when coming out of the seizure.
- Cover the person or provide dry clothes if muscle spasms have caused a loss of bladder control.

3. Check for Injury

- Make sure the victim's mental state has returned to normal. One way to do this is to ask the person his or her name, the year, and your location.
- Look for any injury to the mouth and head.
- Stay with the patients, regularly check.

Diabetes mellitus

- The level of sugar (glucose) in our blood is kept within a fairly strict range by a hormone (insulin) produced in the pancreas.
- When the pancreas fails to produce the correct amount of insulin, this condition is called diabetes.
- People who live with diabetes are usually expert in managing their blood sugar levels, to the range agreed with them by their doctor of nurse. Occasionally their blood has either too much or too little sugar in it, causing problems.

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Živá príroda
ENVIROPROJEKT
Pravda

Hypoglycaemia

When a casualty's blood level falls below a certain level, hypoglycaemia will develop.

There are number of ways that someone's blood sugar levels can drop:

- Missing a meal or snack
- Excessive exertion, without taking account of their extra sugar needs
- Accidental overdose of their medication (designed to lower their blood sugar levels to an acceptable level)

Recognising low blood sugar

The casualty will probably know if they have diabetes.

Other recognition features:

- Behaviour: confused, violent. possibly weak, faint, hungry,
- Breathing: shallow
- Pulse: strong, bounding, palpitations,
- Level of response: deteriorating
- Muscles may have a slight shaking (tremors).
- Skin: cool, clammy, pale, sweaty.
- The casualty may have a form of recognition, eg. carry a card, wear a bracelet, wear a necklace, carry diabetes medication, etc.

Hyperglycaemia

This is relatively uncommon in the field of first aid. If you are unsure whether the casualty, who says they have diabetes, is suffering from low or high blood sugar, the chances are it is low, so think carefully before assuming their blood sugar is high!

When a casualty's blood level gets above a certain level, hyperglycaemia will develop.

There are number of ways that someone with diabetes can have increased blood sugar levels:

- Inappropriate types & quantities of food and drink
- Decreased activity, without taking account of their reduced sugar needs
- Accidental under-dosing of their medication.

Recognising high blood sugar

The casualty may not know if they have diabetes, as the condition often presents as high blood sugar.

Other recognition features:

- Breathing: laboured and deep breaths. May have a faint smell of acetone (like pear drop sweets or nail varnish remover).
- Pulse: fast.
- Level of response: may be deteriorating
- Skin: dry.
- Increased thirst, which leads to drinking more, which leads to passing water more frequently and in greater amounts.
- The casualty may have a form of recognition, e.g. carry a card, wear a bracelet, wear a necklace, carry diabetes medication, etc. REMEMBER, however, they can always be carrying these for somebody else OR they may be un-diagnosed!

Poisoning - intoxications

Entry

- Mouth
- Skin
- Lungs
- I. V.

Consequences

- Type of the poison
- Doses
- Entry route
- Organism (age, diseases…)
- Toxin effects/complications

General principles

- Stop the poison
- Remove the poison
- Treat signs, symptoms
- Give antidote
- Protect yourself

General measures

- Calm and reassure the patient
- Look for signs and symptoms
- Never induce vomiting
- Nothing per os
- Carbosorb (charcoal) if conscious
- Treat the shock
- Regularly check the patient

Needed information

- **The label** on the medication bottle or chemical container or the name or description of the plant
- **The amount** swallowed
- **The length of time** since the poisoning
- **The victim's age,** weight, and symptoms

THANK YOU