

UNIT 3

RESTORING AND MAINTAINING THE PATENCY OF THE AIRWAYS

A. Warm-up

Whether the passage of air and consequently oxygen to the lungs is stopped or merely impaired, it is of utmost importance to restore and maintain it which often means not only supplying oxygen and restoring the respiratory function but also clearing the blocked airways.

Working in pairs or threes discuss the following issues:

- what may block airways and obstruct the passage of air,
- in what circumstances, accidents or medical emergencies it is likely to be the case,
- what symptoms and signs may indicate that this is the case,
- how the patency of the airways can be restored.

Compare your answers and share the information with the whole group.

B. Reading and Vocabulary Building

Suctioning

Task 1

Read the text and complete it with the words given in the box.

quick • rigid • softer • spinal • prolonged • deep • effort • sounds
• tips • gag • head • side • airway • indicate • decrease • clear •
impede • cause • vomit • provoke • turned • performed •
suspended • inserted • softer

For any resuscitation to be effective it is essential that the victim's is open. There are numerous devices, manual as well as battery and pressurized oxygen powered, to blood, body fluids, vomit or other substances from airways. They have a clear plastic tip which is into the mouth or nostrils of a victim. There are suction of different sizes and quality (..... for fluids, more for vomit and more solid substances). Gurgling audible during breathing or ventilation a need for an airway suctioning. Resuscitation may have to be to allow for a suction when a victim begins to or when you the accumulation of blood or other secretions which may ventilation.

For suctioning the victim's should be turned to the In a injury the victim's whole body should be as a unit. While necessary, suctioning should be with great caution. The device should not be inserted too (as it may bruising, swelling or bleeding) and the very procedure should not be too or too vigorous (as it may the volume of air delivered to the victim's lungs or a reflex).

Vocabulary

tip ustnik
gag reflex odruch gardłowy
proceed with caution postępować
ostrożnie

Task 2

Mark the following statements T (true) or F (false). Justify your opinion.

1. Suctioning is secondary and of lesser importance to resuscitation.
2. There are different types of suction devices available.
3. It is the rescuer's duty to choose the right suction device.
4. The victim's airways can always be cleared with the use of a suction device.
5. The rescuer can usually hear that the victim's airways are obstructed.
6. Rescue breaths and/or CPR cannot be stopped to allow for suctioning.
7. Suctioning requires a special positioning of the victim.
8. Improperly performed, suctioning can cause harm to the victim.
9. The mode in which the suction device is inserted is of lesser importance.
10. The duration of the suctioning procedure should be limited to a few minutes.

Task 3

Arrange the steps of the suctioning procedure in the proper order.

- A. () Turn the victim's head or body (as one unit) to one side.
- B. () Return the victim's head or body to the initial position and begin or resume rescue breathing or CPR.
- C. () Open the victim's mouth.
- D. () Insert the catheter tip into the victim's mouth.
- E. () Remove solids and larger amounts of fluid from the victim's mouth.
- F. () Turn on the suction device.

G. () Check if the suction device is in working order.

H. () Extend the catheter tip from the earlobe to the corner of the mouth to determine the safe depth of the insertion.

Listening

Task 4

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Listen and complete the dialogue between two paramedics (P1 and P2):

P1: Can you hear the? His airway seems to be

P2: Yes. So suction first unless we want him to on his own blood or whatever.

P1: Let's together. Be careful! He may have sustained a head injury.

P2: Don't worry! I'm aware of it. One ... two ... three ...

P1: He's ready. Give me the

P2: Here you are. This should be all right (P1 is inserting the device) How are you doing? Everything's all right?

P1: Yes. I think so. I'm it slowly and gently. Now ... I've got it

P2: And see what's I guess we can start giving him oxygen now.

P1: Yes. I've got the Let's ...

P2: He's doing The oxygen has helped to him. His vital signs are

- P1: Let's get him into the ambulance and to hospital. I'm concerned about potential (after a while, putting the victim onto a stretcher)
- P2: So am I. His are only minor but he's obviously had a
- P1: Another 5 minutes and we'll have him in hospital. I'm glad everything went on smoothly. Frankly, I don't like the suctioning device. I've always got a feeling that I may the victim, more bleeding or a
- P2: Potentially, we may. That's why we are taught to and that's why we exercise so much.

Pass the information on the victim and the actions you have taken to the A&E staff.

C. Reading and Vocabulary Building

Intubation

Task 5

Read the text and answer the questions.

PART ONE

Tracheal intubation, often referred to as simply intubation, is the insertion of a flexible plastic tube into the trachea. The aim of the procedure is to maintain an open airway or to ensure a passage (conduit) for the administration of drugs. It facilitates oxygenation and ventilation as well as prevents the possibility of asphyxiation or airway obstruction constituting protection against regurgitation and pulmonary aspiration. The use of an endotracheal tube can ensure the adequate exchange of oxygen and carbon dioxide, the delivery of oxygen in higher concentrations, the administration of other gases or certain volatile anaesthetic agents such as desflurane, isoflurane or sevoflurane as

well as the administration of certain medications such as bronchodilators, inhaled corticosteroids, atropine, epinephrine, lidocaine, vasopressin and other cardiac arrest treating drugs.

The endotracheal tube is passed through the mouth or the nose and the vocal apparatus into the trachea, the first route being more commonly used.

There are different types of endotracheal tubes oral or nasal, cuffed or uncuffed, preformed, reinforced, and tubes with a double-lumen. They may range from 2 to 10.5 mm in internal diameter (ID). The size is chosen based on the patient's body size, with the smaller sizes being used for paediatric and neonatal patients. Tubes larger than 6 mm ID usually have an inflatable cuff. Now, the once mostly rubber tubes are replaced with tubes made of polyvinyl chloride. Most tubes have an inflatable cuff to seal the trachea and bronchial tree against air leakage and aspiration of gastric contents, blood, secretions, and other fluids. Uncuffed tubes are used mostly in paediatric patients.

At one end the tracheal tube has a fitting which allows it to be connected to a source of pressurized gas (mostly oxygen) while at the other an opening through which gases are channelled into the lungs. It is at this end that the tube may be equipped with a cuff or a balloon which serves to seal the tracheobronchial tree against leakage or aspiration of unwanted gases or materials.

1. What is intubation?
2. What are the main aims of the procedure?
3. What drugs can be administered via the endotracheal way?
4. Is the endotracheal tube inserted directly into the trachea?
5. Is there a single universal type of the endotracheal tube?
6. What does the choice of the endotracheal tube to be used in a given case depend on?
7. What is there a difference between the two ends of the tracheal tube?

penetrating injury drążąca rana
stylet prowadnica
lightwand prowadnica
światłowodowa

Vocabulary

asphyxiation asfiksja, zamartwica,
duszenie się
endotracheal tube rurka
intubacyjna
volatile lotny
reinforced wzmocniony
inflatable cuff nadmuchiwany
rękaw
chloride chlorek
non-penetrating injury niedrażąca
rana
near drowning podtopienie
multiple injuries obrażenia
wielomiejscowe, wielonarządowe
respiratory acidosis kwasica
oddechowa
haematoma krwiak
severe blunt tępy uraz

8. Why is there sometimes an inflatable cuff at one end of the tube?
9. What are most tubes made of?
10. What serves to protect the bronchial tree from aspiration of gases?

PART TWO

Intubation is recommended in acute emergency situations such as damage to the brain resulting from intoxication or poisoning, a non-penetrating head injury or a massive haemorrhage which produces a depressed level of consciousness. The Glasgow Coma Scale (GCS) of less than 8 usually signifies a state of near stupor or coma and dynamic collapse of the extrinsic muscles of the airway and potential obstruction of the airway as well as absence or diminishment of such reflexes as coughing or swallowing. Another indication for intubation is a decreased oxygen content and oxygen saturation of the blood due to hypoventilation, apnea or failure of the lungs to transfer a sufficient amount of gases to the blood. These may be caused by conditions such as a cervical spine injury, multiple rib fractures, severe pneumonia, acute respiratory distress syndrome (ARDS) or near-drowning. In spite of multiple severe injuries or a multisystem disease, such a patient may even be alert and awake. When arterial partial pressure of oxygen is below 60 mm Hg on breathing in oxygen concentration of over 50% or when in the case of elevated arterial carbon dioxide, the arterial partial pressure of carbon dioxide is greater than 45 mm Hg or when there is worsening respiratory acidosis, intubation can be helpful. Other conditions constituting an indication for intubation is a life-threatening airway obstruction by a foreign body frequent in toddlers and infants, swelling or expanding haematoma due to severe blunt or penetrating injury to the face or neck.

In emergency situations, intubation can be performed in the awake patient with local or topical anaesthesia, or without any anaesthesia at all. It is normally facilitated by using a conventional laryngoscope, flexible fiberoptic bronchoscope or video laryn-

goscope to identify the glottis, though other devices and techniques are available. After the trachea has been intubated, a balloon cuff is typically inflated just above the far end of the tube to help secure it in place, to prevent leakage of respiratory gases, and to protect the tracheobronchial tree from receiving undesirable material such as stomach acid. The tube is then secured to the face or neck and connected to a T-piece, anaesthesia breathing circuit, bag valve mask device, or a mechanical ventilator.

Specialized devices have been designed to act as bridges to a definitive airway to help with intubation in emergency situations. They include the laryngeal mask airway, cuffed oropharyngeal airway and the oesophageal-tracheal combitube (Combitube). There are also devices to be used as alternatives to direct laryngoscopy such as rigid stylets, the lightwand (a blind technique) and indirect fiberoptic rigid stylets, such as the Bullard scope, Upsher scope and the WuScope.

1. What emergency situations constitute an indication for performing an intubation?
2. How can GCS help in assessing the need for an intubation?
3. Must an intubation requiring patient always be unconscious?
4. What emergencies are likely to lead to a decreased oxygen content and oxygen saturation of the blood?
5. What can produce an airway obstruction?
6. What does the procedure of inserting an endotracheal tube look like and why are all its stages important?
7. How does technology help in the performance of intubation?

Listening

Task 6

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Listen and complete the conversation between the paramedics (P1 and P2).

P1: Looks like to me. Can you hear me? Good.

P2: What's his? Has it improved?

P1: at and at

P2: We don't want to lose him. What's his?

P1: mmHg. Not good.

P2: I hoped a face mask oxygenation Shall we intubate him?

P1: Yes. And fast. Give me the laryngoscope. A will do. And we can proceed. (*after a while*)

P2: Yes. I think the tube is No sounds over the stomach. Equal breath in the chest. Balanced chest rises and falls.

P1: of gastric contents in the tube?

P2: No. We can start Let me help you fit it in.

Task 7

Decide whether the following statements are true (T) or false (F). Explain.

1. The victim is unresponsive.
2. The paramedics suspect what the victim's problem is.
3. Paramedics have already given him oxygen.
4. They have grounds to think that the victim's condition is deteriorating.

5. The victim's arterial partial pressure is good.

6. The victim is a heavily built, overweight male.

7. The paramedic confirms the proper tube placement in more than one way.

8. The paramedics begin giving oxygen via the tube and then check if it is in place.

D. Vocabulary in Action

Task 8

Complete the list with the nouns or verbs (A). Use the verbs to complete the questions (B). Use the nouns to complete (C).

A

verb	noun
insert	
	intubation
	procedure
maintain	
prevent	
	regurgitation
	obstruction
	aspiration

B

1. The victim needs more oxygen. How shall we?

2. What can be done to the possibility of asphyxiation?

3. Is the endotracheal tube? Have you checked its position?

4. Do you think he has some gastric contents? It looks like it.
5. Don't you think we should not delay the victim to ensure an unobstructed flow of oxygen?
6. Is there no other way to a patent airway?
7. And what if the victim the stomach contents? What shall we do then?
8. Have you checked that the tongue not the airway?

C

1. Have you ever intubated a patient? Are you familiar with the?
2. Are you sure there is in the airway?
3. Is the of an endotracheal tube difficult to perform?
4. Is of an open airway ensured?
5. Is absolutely necessary? Can't respiration be maintained in any other way?
6. Is of a leakage of gases always ensured when we use a cuffed tube?
7. When did the victim last eat? Can we rule out of stomach contents?
8. Have you sealed the bronchial tree to prevent the of blood or other fluids?

Task 9

Complete the sentences with English equivalents of the Polish words given in brackets.

1. The level of oxygen is It is a clear for intubation. (obniżony, wskazanie)

2. There is obvious He must be intubated (niedotlenienie; natychmiast)
3. is below 60 mm Hg. (parcjalne ciśnienie tętnicze)
4. There is (pogarszająca się kwasica oddechowa)
5. The victim sustained a to the face. (poważny, tępy uraz)
6. The airway is blocked by a (obce ciało)
7. to assist in (rurka nosowo-gardłowa powinna być założona; utrzymanie drożności dróg oddechowych)
8. If conventional methods of fail, direct laryngoscopy and an with Magill should be made. (usunięcie niedrożności dróg; należy wykonać; podjęcie próby wydostania ciała obcego; szczypczyki)
9. has improved the casualty's condition, but he is still in need of (odessanie z dróg oddechowych poszkodowanego; wspomagany oddech)
10. When..... is passed into the trachea through the mouth, (rurka dotchawiczna/intubacyjna; zabieg nazywa się intubacją)

E. Follow-up

1. Prepare a mini-presentation addressed to future paramedics on the importance ensuring the patency of the airways while giving first aid as well as ways of restoring and maintaining it.