Biyani's Think Tank

Concept based notes

First Aid

GNM

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CHAPTER-1

Introduction of First Aid

Q.1. Define First Aid.

Ans.: First Aid has been practiced ever since the beginning of humanity. Learning First Aid is the civic responsibility of every citizen. Methods of first aid have been practiced ever since one person desired to help another in sickness or after an injury. But, an organized world-wide effort at recognizing the importance of first aid came only in the year 1877 with the formation of the St. John Ambulance Association of England named after the great apostle St. John. Over the decades, the importance given to First Aid has grown. *Mahatma Gandhi* was a great supporter of the cause of First Aid, and led a band of dedicated Ambulance Corps volunteers in 1906 during the time of the Zulu Rebellion and earlier in 1899 during the Boer war.

Q.2. What is First Aid?

Ans.: **First Aid** is the immediate treatment given to the victim of an accident or sudden illness, before medical help is obtained.

Q.3. What are the aims and principles of First Aid?

Ans.: The main aims of First Aid are :

- To preserve life
- To promote recovery
- To prevent the worsening of the victim's condition

Principles of First Aid : The **first step** that a rescuer should take is to examine the victim to know the details of injuries and their nature. This constitutes the **Diagnosis** section of First Aid.

The **next step** is to actually perform the First-Aid measure or manoeuvre that is deemed appropriate. This constitutes the Treatment section of First Aid.

The **third step** is to arrange for the casualty to be seen by a qualified doctor or have him shifted to a nearby hospital. This step is in the First Aid providers jargon known rather disparagingly as Disposal.

Rules of First Aid : A saying that probably summaries the attributes of a rescuer is *"Make Haste Slowly."*

(1) Reach the accident spot quickly.

(2) Be calm, methodical and quick.

(3) Look for the following :

- Is there failure of breathing?
- Is there severe bleeding?
- Is the patient in shock and if so, is it mild or severe?

If there is inadequate or no breathing what should you do? Click here for the answer.

If there is bleeding what is to be done? Click here for the answer.

How does one identify if a patient is in shock and how should it be managed? Click here for the answer.

Q.4. How the make of First Aid Box?

Ans.: First Aid Boxes should relate to the environment in which they are maintained. Obviously, a First Aid Box which is kept in a factory premises will be quite different from a small pack that a traveller carries. Three types of First Aid Boxes are listed below. These provide guidelines, but you will know from experience what to add to the contents in your specific environment.

(1) Large First Aid Box (For Factories etc.)

(2) Medium First Aid Box (Motor vehicles etc)

(3) Small First Aid Box (Personal travel)

Large First Aid Box

Size : (17 ½ " × 10" ×6 ½ ")

Type : Dust-Proof

Environment : Small factories etc.

Contents :

1. First Aid leaflet	1	Copy
2. Sterilized finger dressings	18	Nos
3. Sterilized hand or foot dressings	24	Nos

4. Sterilized body or large dressings	20	Nos
5. Sterilized burn dressings - Small	6	Nos
Large	4	Nos
Extra Large	2	Nos
6. Sterilized cotton wool (25gms)	6	Nos
7. Cetavolon (28 gms)	2	Nos
8. Eye pad	6	Nos
9. Adhesive plaster (2.5cms×5M)	1	
10. Assorted roller bandage		
25 cms × 5.5M	6	Nos
5 cms × 5.5M	6	Nos
7.5 cms × 5.5M	6	Nos
11. Triangular bandages	12	Nos
12. Safety pins (10 Nos)	1	Set
13. Scissors ordinary, 12.7 cms (Both sides sharp)	1	Pair
14. Liquid antiseptic 110 ml	1	
15. Cotton wool for padding	50	Gms
16. Eye ointment of Sulphacetamide Preparation (Patent Drug)	1	Bottle
17. Loose woven gauze (28" × 8") in a compressed pack	1	Pkt
18. Aspirin (300mg)	24	Tabs

19. Tear off scribbling Pad (4"× 6") with a pencil in a plastic cover	1	
20. Adhesive dressing strips	10	Nos
21. Field dressings of modified army pattern	3	Nos
22. Record card in a plastic cover	1	No
23. Torch, medium size, without cells	1	No
24. Hand gloves (disposable)	20	Pairs

Medium First Aid Box

Size : (16" × 7 ¾″ ×4″)

Type : Dust-Proof

Environment : Small Institution, Motor Vehicles etc.

Contents :

1. First aid splints wooden (ordinary)	1	Set
2. Triangular bandages	12	
3. Sterilized cotton wool (25gms)	3	Pkt
4. First aid dressings – Large	3	Pkt
Medium	3	Pkt
5. Roller bandages assorted	9	
6. Burn dressings assorted	3	
7. Burn dressings assorted	3	
8. Eye pads	2	
9. Safety pins (10 Nos)	1	Pkt
10. Scissors, ordinary, 12.7cm, both sides sharp	1	Pair
11. Spool adhesive plaster	1	
12. Catevalon 28 gms	1	Tube
13. Liquid antiseptic 50 ml bottle	1	

14. Eye ointment of sulphacetamide preparation	1	Tube
15. Loose woven gauze 24/8 in a compressed Pack	1	
16. Aspirin 300mg (24 tables)	1	Bottle
17. Tear off scribbling pad with a pencil in plastic cover 4" 6	1	
18. Adhesive dressing	10	Strips
19. Record card in plastic cover	1	
20. Field dressings of the modified army pattern	2	
21. Torch, medium size, without cells	1	
22. Hand gloves (disposable)	2	Pairs

Small First Aid Box

Size : (5" × 3 ½ " × 2 ½")
Environment : For Haversack & pocket

Contents :

1. Cetavalon	1	tube
2. Sterilized finger dressings	1	No
3. Sterilized hand or foot dressings	1	No
4. Sterilized body or Large Dressings	1	No
5. Sterilized medium burn dressing	1	
6. Adhesive plaster (1.25 cms×90 cms)	1	spool
7. Safety pins	6	
8. Roller bandage 1" (2.5 cms)	1	
9. Roller bandage 2" (5.0 cms)	1	
10. Cotton wool	1	pkt
11. Eye pad	1	
12. Small scissors	1	pair
13. Disposable hand gloves	1	pair

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CHAPTER-2

Wounds

Q.1. Define Wounds.

Ans.: When any tissue in our body is torn or cut by injury a wound is caused. There are several types of wounds like Bruises, Lacerations, Contusions, Incised wounds, Punctured wounds and others.

- Incised Wounds are caused by sharp instruments like knives, razor etc. The blood vessels are "clean cut" and so these wounds bleed extensively.
- Contused Wounds are caused by blows from blunt instruments or by crushing. The tissues look bruised.
- Lacerated Wounds are caused by fall on rough surfaces, pieces of shells, claws of animals, machinery etc. These wounds have torn or irregular edges and they tend to bleed less.

Q.2. What are the dangers of Wounds?

Ans.: The two major dangers of a wound are bleeding and infection. Bleeding is the immediate danger and should be dealt with as soon as possible.

Dealing with Bleeding : Bleeding is one of the commonest causes of death in accidents. It is caused by the rupture of blood vessels due to the severity of the injury. There are two types of bleeding: external bleeding which is obvious and apparent and internal bleeding where the bleeding is not apparent at the outset but may manifest itself later in the form of bleeding from the nose, ear, lungs or stomach.

Signs and Symptoms of Bleeding :

- The patient may feel faint and even collapse.
- The skin becomes cold and clammy.
- The pulse becomes rapid and weak.
- Breathing becomes shallow and the patient may gasp for air and sigh deeply.
- Profuse sweating may occur.

- Thirst may be prominent.

Identifying the Source of Bleeding : Bleeding may occur from the arteries, veins or capillaries or from combinations of the three. It can be identified by the following characteristics :

- Bleeding from the arteries is bright red and comes out in jets or spurts, which correspond to the beating of the heart. This kind of bleeding is very dangerous and may cause death quickly.
- Bleeding from the veins is dark in colour and often flows out in a continuous stream.
- Bleeding from capillaries is steady, slow ooze. In an acute situation, especially if on the surface of the body, it is less worrying than an arterial or veinous bleeding.

Q.3. How to manage External Bleeding?

Ans.

(1) Bring the sides of the wound together and press firmly.

(2) Place the patient in a comfortable position and raise the injured part (if no bone fracture is suspected).

(3) If you know the pressure points at the appropriate locations then press on them firmly for 10-15 minutes.

(4) Apply a clean pad larger than the wound and press it firmly with the palm until the bleeding lessens and finally stops.

(5) If the bleeding continues, do not remove the original dressing but add more pads.

(6) Finally bandage firmly but not too tightly.

(7) Treat for shock.

(8) Shift the patient to a hospital as soon as possible.

Q.4. How to manage Internal Bleeding?

Ans.:

(1) Lay the patient down with the head low. Raise his legs using pillows.

(2) Keep the patient calm and relaxed with reassurance. Do not allow the patient to move.

(3) Maintain the body heat with blankets, rugs or coats.

(4) Do not give anything to eat.

(5) Do not apply hot water bottles or ice bags to the chest or abdomen. This may make things worse.

(6) Arrange for the patient to be shifted to the hospital at the earliest.

Dealing with Infection : Infection in wounds is caused by dirt and any material contaminated with germs that get into the wound. These micro-organisms may come from:

- The object that caused the wound
- The skin of the person
- The clothes of the person
- The hands of the First-Aider
- Dirty Dressings
- Contaminated Water
- Surrounding Air

Q.5. How to prevent infections in Wounds?

Ans.:

(1) Wash your hands thoroughly with soap and water.

(2) Clean the external wound with plenty of good clean drinking water.

(3) Dry the area surrounding the wound gently with dry sterile gauze or freshly laundered handkerchief or dhoti.

(4) Cover the wound with sterile gauze if available. Alternately a dry sterile gauze or freshly laundered handkerchief or dhoti may be used.

(5) Do not let the cotton come into contact with the wound.

(6) If you wish to spread antiseptic over the wound, ensure that it is not mixed with water.

(7) Bandage the wound.

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CHAPTER-3

Shock

Q.1. How to manage Shock and Its management?

Ans. Shock is a condition of collapse, which should be treated as top priority, second only to attending to obstructed breathing, stoppage of the heart or severe bleeding.

Conditions in which Shock is seen :

- **Severe Bleeding :** Shock is most often caused due to loss of blood. It may either develop at once or may be delayed. The blood loss could be either seen externally or could be internal within a particular organ or system. The greater the loss of blood, the greater the risk of developing shock. It is important to remember that the slow, steady loss of blood can produce shock.
- **Heart Attacks :** Obstructed blood supply to the heart and failure of the function of the heart can produce shock.
- **Severe Burns :** Extensive areas of the burnt skin surface can produce shock.
- **Severe Bacterial Infections :** Discharge of toxins produced by the bacteria into the blood stream can produce shock.
- **Abdominal Emergencies :** A burst appendix, perforated intestine or stomach, intestinal obstruction, pancreatitis etc, can produce shock.
- **Excessive Loss of Body Fluids :** Diarrhoea, vomiting etc. can produce shock.
- **Crush Injuries :** Injuries following explosions, building collapses etc., can produce shock.

Recognizing Shock :

- The patient may feel giddy or faint.
- The skin feels cold and clammy.
- The face and lips look pale.
- The pulse may be rapid and weak.
- The patient may complain of blurring of vision.
- The patient may vomit.

- In the later stages of shock the patient becomes unconscious.

Managing Shock :

(1) Reassure the patient if the patient is conscious.

(2) Place the patient comfortably on his back. Except in cases of injury to the head, chest or abdomen, lower the head slightly and turn to one side. In case of vomiting, place in three-quarter back up position.

(3) Loosen tight clothing but do not remove clothing.

(4) Wrap in light bed sheet or a thin rug.

(5) Never use hot water bottles or very warm rugs. Do not rub any part of the body with anything.

(6) Do not administer anything by mouth especially in cases of injuries to the chest or abdomen, as an operation may be required soon.

(7) If the patient is conscious and there is no injury to the chest or abdomen, give a little water, hot coffee or tea. Never give any alcoholic drinks.

(8) Transport the patient quickly to the hospital.

Remember that in shock a delay of even a few minutes may mean death. So attend to the patient as quickly as possible.

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CHAPTER-4

Cardiopulmonary Resuscitation (CPR)

Q.1. Define the Cardiopulmonary Resuscitation (CPR).

Ans. Cardiopulmonary resuscitation or CPR is an emergency life-support procedure. It includes artificial respiration and manual cardiac massage. Both these procedures are applied to prevent irreversible brain damage or death in the case of cardiac arrest. They should be performed only by someone trained in the technique after making sure that the victim's heart has stopped or respiration has ceased.

The first step is to check if a victim's pulse has stopped and then to check the pulse rate in the neck or groin. If no pulse can be felt the rescuer can assume that the victim's heart has stopped and start CPR at once if he is properly trained. If untrained in CPR one should seek emergency medical help as soon as possible.

Those who are performing the CPR may shout out to someone nearby to call for medical help.

Artificial Respiration : The first step in CPR is to give artificial respiration. Artificial respiration is a lifesaving method used to restore breathing to a person whose breathing has stopped. If breathing has stopped, the victim will soon become unconscious. There will be no chest movement, and the skin will be pale or a slightly bluish colour. When breathing stops there is no oxygenation of the blood and irreversible brain damage or death may occur in as little as three to six minutes. Therefore it is important to start artificial respiration as soon as possible and continue until medical help arrives. If breathing restarts and becomes regular, the victim should be observed continuously until medical help arrives.

The most common and efficient method of artificial respiration is mouth-to-mouth resuscitation.

Mouth-to-Mouth Resuscitation :

(1) Assess the responsiveness of the patient by gently shaking the victim and shouting "Are you OK"? This precaution will prevent us from injuring during resuscitation someone who is not truly unconscious.

(2) Ask someone nearby to call for Medical Help.

(3) Move the victim away from any dangerous location, that is, locations close to harmful gases, fire, etc. Place the victim face up on a firm surface, such as the floor or the ground.

(4) Open the Airway. One very important step in the resuscitation process is to immediately open the airway. Quite often the tongue may block the passage of air into the air passages. To open the airway, one hand must be placed on the victim's forehead and firm, backward pressure with the palm is applied to tilt the head back. If there is a suspicion of neck injury, the head should not be moved unless it is absolutely necessary to open the airway. Place the fingers of the other hand just under the chin and lift to bring the chin forward. If there is material like vomitus or any foreign body that appears to block the air passages it must be removed.

(5) Ascertain whether the patient is breathing: With the airway open, look at the chest for signs of breathing. Put your ear next to the nose and mouth and listen for breathing. Feel for the flow of air. If there is no breathing, begin artificial respiration.

(6) Mouth-to-Mouth Resuscitation: Place one hand on the victim's forehead to pinch the victim's nose closed. Ensure that your breathing is regular. Take a deep breath and place your mouth tightly over the victim's mouth. If you wish you may place a thin handkerchief between your mouth and the victim's mouth. However, do not use a very thick cloth, as it may be

difficult to blow through it. Blow until the victim's chest rises. Listen for air being passively exhaled. Repeat with breaths at the rate of 12 times per minute. Children should receive smaller breaths repeated at the rate of 20 times per minute.

External Cardiac Massage : The aim of external cardiac massage is to cause the heart to pump blood to the other parts of the body. It should be started simultaneously with artificial respiration in a victim whose heart has stopped beating (as made out by an absent pulse in the neck or groin). The rescuer should place the heel of the palm of one hand parallel to and over the lower part of the victim's sternum (breastbone), 1 to 1.5 inches from its tip. The rescuer puts the other hand on top of the first and brings the shoulders directly over the sternum. The rescuer's fingers should not touch the victim's chest.

Keeping the arms straight, the rescuer pushes down forcefully on the sternum. This action, called *external cardiac compression*, results in blood flow from the heart to other parts of the body. The rescuer alternately applies and releases the pressure at a rate of about 60 compressions per minute. Each time after 15 compressions, the rescuer gives the victim artificial respiration (three or four breaths). The ratio of 15 cardiac compressions to 3 or 4 breaths is commonly followed.

If the victim is a small child, then the rescuer must use only one hand for the cardiac compression. For infants, the pressure is exerted using the index and middle fingers at the middle of the sternum. In all cases, the compressions must be accompanied by artificial respiration. Treatment should continue until medical help arrives.

CPR is best performed by two trained persons. One should administer external cardiac compression, and the other should provide artificial respiration. The rescuers should position themselves on opposite sides of the victim so they can switch roles easily if either becomes fatigued.

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CHAPTER-5

Epilepsy

Q.1. Define Epilepsy.

Ans.: Epilepsy is a disease, often involving the young, where the patient has repeated episodes of convulsions. Epilepsy patients are in danger of hurting themselves when they fall down, when they bite their tongue or may either aspirate or even asphyxiate during the episode.

Q.2. How to identify a Seizure or Convulsion?

Ans.: **Minor Seizure :** Here the patient may become pale, the eyes become fixed and staring and he may become unconscious for a few seconds. He soon resumes his work as though nothing has happened. Here the only precaution to be taken is to observe if the patient is progressing into a major epileptic attack and to treat as for a fainting spell.

Major Seizure : This kind of seizure may follow headache, restlessness or a feeling of dullness. The patient may be aware that he is likely to have a fit soon. The fit itself is divided into four phases :

(1) **Phase I -** Sudden loss of consciousness which causes the patient to fall to the ground. The patient may cry or scream.

(2) **Phase II -** The body becomes rigid for a few seconds and the face becomes flushed.

(3) **Phase III -** The fits begin in full force. The patient may injure himself by striking himself hard against nearby objects. There is frothing at the mouth and the tongue may be bitten. The patient may pass urine or motion during this phase.

(4) **Phase IV -** The attack lasts for a few minutes and then the convulsion stops. The patient appears dazed and confused. He may lapse into slumber or may act in a strange manner for a few hours without knowing the exact nature of his actions. After a few hours he becomes normal again.

Management of a Convulsing Patient :

(1) Try to keep the patient under control. Do not use force to stop the convulsions. Remove any objects in the vicinity that may cause injury to the convulsing patient.

(2) Prevent the biting of the tongue by inserting a spoon wrapped in a handkerchief near the back teeth, when the jaws are relaxed.

(3) Wipe the froth from the mouth.

(4) Follow the general rules for treating an unconscious patient.

(5) Watch for recurrence, if any. Do not leave the patient until you are sure that he is aware of his surroundings. Advise the patient to see a doctor soon.

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CHAPTER-6

Unconscious Patient

Q.1. How to Managing an Unconscious Patient?

Ans.: A person could become unconscious due to a number of reasons. There are however a few general principles on how an unconscious patient should be handled.

(1) Ensure that there is a free supply of fresh air and that the air passages are free.

(2) Move the patient away from any harmful gases. If inside a room, open the door and windows. Remove false teeth. It is most important to keep back the crowds, they only obstruct.

(3) Loosen the clothing at the neck, chest and waist.

(4) If the weather is cold, wrap blankets around the body.

(5) If breathing has stopped or is about to stop turn the patient into the required posture and start artificial respiration.

(6) Breathing may be noisy or quiet. If quiet, let the patient lie on his back. Raise the shoulders slightly using a pad and turn the head to one side. Watch for some time. If the breathing becomes difficult, noisy or obstructed, change the posture to ease breathing. The changing of posture in cases of injury to the head, neck and spine is best avoided unless absolutely necessary and should be done only after knowing the specific techniques involved. If the breathing is noisy turn the patient to the three-quarter prone position and support in this position using pads. If patient

is on a stretcher, raise the foot of the stretcher so that the lung secretions can drain easily.

(7) Do not give any food or drinks to the patient.

(8) If you know the specific reason why the patient is unconscious and know the specific first aid for this condition, apply it.

(9) Observe the patient continuously for any changes in the condition and do not leave the scene until the doctor arrives or the patient is shifted to a hospital.

(10) It is best to move the patient to a sheltered place on a stretcher and then to a hospital as soon as possible.

Respiration : Respiration means breathing in and breathing out of air. This function is necessary to supply oxygen (of the air) to all the organs in the body. Stoppage of oxygen supply to the organs results in death, sooner or later.

The Respiratory System : The organs connected with respiration are the Air Passages and the Lungs :

The Air Passages : The air passages consist of the nose, the throat (pharynx), the wind pipe (trachea) and the two air tubes (bronchi). The bronchi divide into minute branches (bronchioles) which end in the lung substance (alveoli)

The Lungs : The Lungs are two in number and are situated on the right and left sides of the chest cavity. Each Lung is made up of a number of small sacs called alveoli. The Lung is covered with a membrane called pleura, which lines the inner wall of the chest cavity also.

The Mechanism of Respiration : During inspiration (breathing in) the diaphragm (the muscle separating the chest cavity) flattens and increases the chest capacity from above downwards. The ribs move upwards and forwards increasing the capacity of the chest cavity from front to back by the action of the muscles situated between the ribs. The lungs thus expand and air enters them.

During expiration (breathing out) the reverse process takes place. The diaphragm comes back to its original state and ribs fall back, thus forcing the air out of the lungs.

Small blood vessels (capillaries) surround the alveoli and the exchange of oxygen and carbon dioxide takes place takes place through the blood circulating in the capillaries. Oxygen is absorbed from the blood and water vapour and carbon dioxide are let out from the blood plasma in to the alveoli.

The lungs are also supplied with nerves that are connected to an area in the brain called the Respiratory Centre. This centre controls respiration.

Suffocation (Asphyxia) : Asphyxia is a condition in which the lungs do not get sufficient oxygen supply of air for breathing. If this continues for some minutes breathing and heart action stops and death occurs.

Causes :

(1) **Conditions affecting the Air Passage :**

(A) **Spasm**

(i) Food going down the wrong way into the air passage.

(ii) Water getting into the air passage, as in drowning.

(iii) Irritant gases (coal gas, motor-exhaust fumes, smoke, sewer and granary has, gas in deep unused wells.) getting into the air passage.

(iv) Bronchial Asthma.

(B) **Obstruction**

(i) Mass of food or foreign body such as artificial teeth etc in the air passage.

(ii) Tongue falling back in an unconscious patient.

(iii) Swelling of tissues of the throat and as a result of scalding (boiling water) or injury, burns and corrosive.

(C) **Compression**

(i) Tying a rope or scarf tightly around the neck causing strangulation.

(ii) Hanging or throttling (applying pressure with fingers on the wind pipe).

(iii) Smothering like overlaying an infant: and unconscious person lying face downwards on a pillow, or plastic bags, or sheets covering face completely for some time.

(2) **Conditions affecting the Respiratory Mechanism :**

(i) Epilepsy, Tetanus, Rabies etc.

(ii) Nerve diseases causing paralysis of chest wall or diaphragm.

(3) **Conditions affecting Respiratory Centre :**

(i) Morphine, barbiturates (Sleeping tablets).

(ii) Electric Shock, Stroke.

(4) **Compression of the Chest :**

(i) Fall of earth or sand in mines, quarries, pits or compression by grain in a silo, or big beams and/or pillars in house-collapse.

(ii) Crushing against a wall or other barrier or pressure in a crowd.

(5) Lack of Oxygen at high altitudes with low atmospheric pressure, where acclimatization – (gradual ascent) is necessary.

Signs and Symptoms :

Phase-I :

(1) Rate of breathing increases.

(2) Breath gets shorter.

(3) Veins of the neck become swollen.

(4) Face, Lips, nails, fingers and toes turn blue.

(5) Pulse gets faster and feebler

Phase-II :

(1) Consciousness is lost totally or partially.

(2) Froth may appear at the mouth and nostrils.

(3) Fits may occur.

Note : Even after breathing has stopped the heart may continue to beat for ten to twelve minutes. In such cases it is possible to restore breathing by artificial respiration, and bring the casualty back to life.

Management : The important things to do are :

(1) Remove the cause if possible or remove the casualty from the cause.

(2) Ensure an open airway to allow the air to reach the lungs. Place the individual on his back. Support the nape of the neck on your palm and press the head backwards. Then press the angle of the jaw forward from behind. This will extend the head on the neck and lift the tongue clear off the airway. If the airway is opened by this method the individual gasps and starts to breathe. Give three to four inflations to the lungs to facilitate breathing by mouth-to-mouth method. If the heart is beating, carotid pulse can be felt at the base of neck. (Pulse at wrist may not be felt).Continue to ventilate the lungs until breathing becomes normal.

(3) Prevent damage to the brain and other vital organs (which will occur due to the lack of oxygen) apply artificial respiration to ensure prompt ventilation of the lungs, and if necessary, do external cardiac compression.

(4) Continue artificial respiration until natural breathing is restored it may be necessary to continue for a long time unless a doctor advises to stop in

case of double you should rather continue longer than stop early. Take help from other available in case of need.

(5) Keep the body warm using light blankets.

(6) Provide shelter to the casualty (at least with an umbrella).

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CHAPTER-7

Drowning

Q.1. How can manage the casualty to Drowning?

Ans.: Drowning is the result of complete immersion of the nose and mouth in water (or any other liquid). Water enters the windpipe and lungs, clogging the lungs completely.

A. Management : The aim of first aid is to drain out water (or other matter) from lungs and to give artificial respiration.

(1) Act quickly. Remove seaweeds and mud from the nose and throat. Start artificial ventilation immediately. This is possible even when the casualty is in water.

(2) Turn the victim face down with head to one side and arms stretched beyond his head. Infants or children could be help upside down for a short period.

(3) Raise the middle part of the body with your hands round the belly. This is to cause water to drain out of the lungs.

(4) Give artificial respiration until breathing comes back to normal. This may have to go on for as long as two hours.

(5) Remove wet clothing.

(6) Keep the body warm, cover with blankets.

(7) When victim becomes conscious, give hot drinks viz coffee or tea.

(8) Do not allow him to sit up.

(9) After doing the above, remove quickly to hospital as a stretcher case.

B. Strangulation and Hanging :

(1) Cut or remove the band constricting the throat.

(2) If suspended, raise the body and loosen or cut the rope.

(3) Give artificial respiration.

(4) To do the above do not wait for the policeman.

C. Choking (Asphyxia due to obstruction in wind pipe) : This is most common with children. A marble, a weed or a button may get stuck in the air passage. In adults too, food may go down the wrong way and cause choking.

Management in the case of an Adult : When victim is standing, the First Aider should stand behind to victim and wrap his arms around the waist. Grasp the fist with your other hand and place the thumb of the fist against the abdomen (belly) slightly above the navel and below the rib cage.

Press your fist into the victim's abdomen with a quick upward thrust. Repeat several times if necessary till the foreign body is expelled out of the windpipe. When the victim is sitting, the First Aider stands behind the chair and performs the same manoeuvre. If the victim is lying, turn him supine (face up). Facing the victim, kneel astride the victim's legs. With your hands one on top of another, place the heel of your bottom hand over the abdomen (belly) between the naval and the ribcage. Press into the victim's abdomen with a quick upward thrust repeat several times, if necessary. Should the patient vomit, place him on his side and wipe to prevent asphyxia. Following the expulsion of food particle/foreign body it may be necessary to give artificial respiration.

Management in case of an Infant :

(1) Hold the child upside down by the legs and smack his/her back hard three or four times.

(2) If not successful, lay the child prone with his head hanging downwards over the knee and give sharp smacks between shoulders.

(3) It still not successful, induce vomiting by passing two fingers right to the back of the throat.

D. Swelling within the Throat : Swelling within the throat may occur as a result of trying to drink very hot liquids or swallowing corrosive poisons or may be due to inflammation.

Management :

(1) Make the patient sit up.

(2) If breathing continues to be normal or is restored to normal give ice to suck, or cold water to sip.

(3) Butter, olive oil or medicinal paraffin may also be given.

(4) Apply cloth wrung out of hot water to the front of the neck.

(5) If breathing has stopped, give artificial respiration.

E. Suffocation by Smoke :

(1) Protect yourself by a towel or a cloth (preferably wet) over your mouth and nose.

(2) Keep low and remove the casualty as quickly as possible away from the area.

F. Suffocation by Poisonous Gases :

Carbon Monoxide (lighter than air) : This gas is present in car-exhaust fumes, in household coal gas: during incomplete combustion of charcoal stoves and in coal mines.

Management : The first aid treatment consists in removing the person from the area, applying artificial respiration and giving pure oxygen, if available.

(1) Ensure circulation of fresh air before entering the room by opening the doors and windows.

(2) Before entering the enclosed space take two or three deep breaths and hold your breath as long as you can.

(3) Crawl along the floor (as the gas is lighter than air)

(4) Remove the casualty as quickly as possible to fresh air.

(5) Loosen his clothes at neck and waist and give artificial respiration, if asphyxiated.

Carbon-dioxide and other (heavier than air) : This gas is found in coal mines, deep unused wells and sewers. Various other gases such as leaking refrigerator gases; compressed gases used for cooking and lighting may also cause suffocation.

Management :

(1) Observe all the precautions mentioned above.

(2) Enter in an upright position (as the gas is heavier than air and collects near the floor)

(3) Remove the casualty as quickly as possible to fresh air.

(4) Wherever ventilation is not possible and deadly poisonous gas is suspected, use a gas mask to protect yourself.

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CHAPTER-8

Asthma

Q.1. What is Asthma?

Ans.: This is a condition where sudden constriction of airways causing difficulty in breathing, especially in breathing out. Allergy, infection, anxiety or tension can trigger an attack.

Q.2. What are the Management Asthma?

Ans.:

(1) Reassure the patient

(2) Make them sit up in bed or chair and allow him to lean forward with a couple of pillows and/or a small table on which to rest his head.

(3) Ensure fresh air by opening the windows.

(4) Seek medical aid from a nearby doctor.

Artificial Respiration (Respiratory Resuscitation) : There have been several methods of artificial respiration practiced in First Aid. Up to the II World War, Sylvester's method was felt to be the best. During this war mouth-to-mouth (to-nose) method was discovered and found to be the best and easiest method to be used under most conditions.

Asphyxia of a severe degree is found along with unconsciousness. General causes are :

(a) The tongue may have fallen back into the throat.

(b) Vomit or spittle may have collected in the throat, or

(c) Some foreign material (like weeds, mud etc.), may have collected and obstructed the air passages. Therefore, when a casualty is unconscious make sure he is breathing freely.

Begin to work immediately as every minute counts. Do not delay.

Treatment when not Breathing :

(1) Loosen all clothing at waist, chest and neck.

(2) Tilt the head backwards, while supporting the back of neck with your palm. This will lift the tongue to its normal position. Thus the air passage will be cleared and the casualty may begin to breathe after a gasp. Pass resuscitube if one is available readily.

(3) If breathing does not being after the above treatment, help movements of chest and lungs four or five times. This will be usually enough to start breathing. If breathing does not start even now, mouth-mouth (to-nose) breathing should be begun.

Mouth-to-Mouth :

(1) Place the casualty on his back. Hold his head tilted back.

(2) Take a deep breath with mouth open widely.

(3) Keep nostrils of casualty pinched.

(4) Cover the mouth of the casualty with your mouth snugly.

(5) Watching the chest, blow into his lungs, until the chest expands. Withdraw your mouth; note that the chest falls back (It is hygienic to cover the mouth of casualty with your handkerchief or some clean cloth).

(6) Repeat the above 15 to 20 times a minute.

(7) If the casualty is young (baby or a child), the operations are as above, but your open mouth should cover both the mouth and nose of the casualty. Blow gently.

(8) If the chest does not rise (as in 5 above) look for an obstruction.

   (a) Turn the casualty to a side and thump his back. This will make the obstructing material come to the front of throat. Open the mouth and remove it with your finger covered with a piece of cloth.

   (b) If a child, hold it up by the feet and thump the back.

(9) Use mouth-to-nose respiration if mouth-to-mouth is not possible, but now the casualty's mouth should be closed by the First Aider's thumb.

(10) If the heart is working, continue artificial respiration until normal breathing occurs. Send for an ambulance.

(11) If the heart is not working, you will notice the following :

(a) The face is blue or pale.

(b) Pupils are dilated.

(c) Heart beats and pulse at root of neck (carotid) are not felt

(12) Then treat as follows :

(a) Place the casualty flat on his back on a hard surface (bench, table etc.)

(b) Give a smart hit with the edge of your hand on the lower and left angle of the sternum. This usually stimulates the heart to work.

(c) In case the heart does not work, persist the striking for 10-15 seconds, at the rate of one stroke a second, feel for the pulse becomes regular and continuous to stop beating.

(d) All the while artificial respiration has to go on.

Note: Important

(a) Even if the casualty is breathing, but the breathing is not normal, it is wise to start artificial respiration.

(b) Do not begin thumping the heart or compression until you are sure that the heart has stopped beating.

External Heart Compression (if there are two trained person) :

(c) This should go on along with artificial respiration therefore ask the First Aider giving mouth-to-mouth breathing to sit to the right of the casualty and place yourself on the left side.

(d) Feel and mark the lower part of the sternum.

(e) Place the heel of your hand on the body, making sure that the palm and fingers are not in contact with the Chest.

(f) Place the heel of the other hand over it.

(g) With your right arm, press the sternum backward towards the spine. (It can be pressed back 1 to 1.5 inches in adults.)

(1) Adults should be given about 60 pressures a minute.

For children from two to ten years 3 pressures with one hand (heel) will be enough; but pressure should be 80-90 times a minute.

For babies up to two years, 2 pressures with two fingers are good enough applied 100 times per minute.

(2) Press firmly but carefully; carelessness may cause injury to ribs and deeper tissues.

(3) If the treatment is effective,

(a) Colour will become normal

(b) Pupil will contract as improvement begins and

(c) Carotid pulse begins with each pressure.

(4) When pulse is not restored, continue compression till the patient reaches hospital.

(5) Inflation's of lungs to heart pressure should be as 2:15. If there is only one First Aider, he has to be very smart and active. Finish 15 heart compressions, rush to head-side, give two inflation's to the lungs, and get back to the heart and give 15 compressions.

(6) Repeat these.

If there are two First Aiders, No.1 makes 5 heart compressions and then No.2 given one lung inflation. These are repeated, At the same time No.1 can watch the pupils and No.2 can feel the carotid pulse.

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CHAPTER-9

Burns

Q.1. What is Burns and Scalds?

Ans.: Burns are injuries that result from dry heat like fire/flames, pieces of hot metal, contact with live wires, etc. Scalds are caused by moist heat due to boiling water, steam, oil, tar etc.

Chemical Burns are caused by strong acids like Sulphuric or Nitric Acid or by strong alkalies like Caustic Soda.

Nuclear Burns are caused by the instantaneous flash of intense heat given off by a nuclear explosion. It causes burns on the skins of people several miles away.

Q.2. What are management of Extensive Burns?

Ans.: (1) Keep the patient quiet and reassure him.

(2) Wrap him up in a clean cloth.

(3) Do not remove adhering particles of charred clothing.

(4) Cover the burnt area with a sterile or clean dressing and bandage. In the case of burns that cover a large part of the body it is sufficient to cover the area with a clean sheet or towel.

(5) Keep the patient warm but do not over heat.

(6) If the hands are involved, keep them above the level of the victim's heart.

(7) Keep burnt feet or legs elevated.

(8) If the victim's face is burnt, sit or prop him up and keep him under continuous observation for breathing difficulty. If respiratory problems develop, an open airway should be maintained.

(9) Do not immerse the extensively burnt area or apply ice water over it because cold may intensify the shock reaction. However a cold pack may be applied to the face or hands or feet.

(10) Do not open the blisters on the victim's skin.

(11) Treat for shock.

(12) Remove quickly from the body anything of constricting nature like rings, bangles, belt and boots. If this is not done early, it may be difficult later on as the limbs begin to swell.

(13) If medical help or trained personnel cannot reach the scene for an hour or more and the victim is conscious and not vomiting, give him a weak solution of salt and soda (one level teaspoonful of salt and half a level teaspoonful of baking soda to each quart of water, neither hot nor cold) at home and enroute to the hospital. Allow him to sip slowly.

(14) Give about four to five ounces to an adult over a period of 15 minutes, two ounces to a child between one and twelve years of age and one ounce to an infant below one year. Discontinue the fluid if vomiting occurs. Do not apply ointments, grease or any other material over the wound.

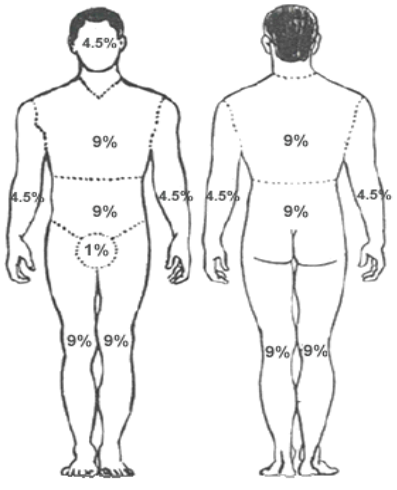
Q.3. What are the degrees of Burn?

Ans.: The degree of burns indicates the degree of damage to the tissues. There are three degrees of burns. They are :

- First Degree Burns: The skin is reddened.
- Second Degree Burns: There are blisters on the skin.
- Third Degree Burns: There is destruction of deeper tissues with scarring.

The danger from burns depends more on the extent of the burns than on the degree. Superficial burns over a large area are more dangerous than complete charring of a part of a limb. On any one person, different parts of the body may show varying degree of burns.

To calculate the extent of burns the "*Rule of Nines*" is used. The figure below explains the "*Rule of Nines*".



Q.4. Why are Burns Dangerous?

Ans.: Burns are dangerous because :

- They can very quickly lead to shock in the immediate period following the burn due to loss of excessive fluids from the body.
- They produce intense pain.
- They lead to infection in the affected area.

When they heal they leave scars behind, which are disfiguring and can restrict movements.

Q.5. What are to management of minor Burns and Scalds?

Ans.: (1) Clean the area gently with clean water.

(2) Submerge the burnt area in cold water.

(3) Do not apply cotton wool directly over the burnt area.

(4) Do not apply any greasy substance.

(5) Give the patient warm drinks.

Management of Chemical Burns :

(1) Wash off the chemical with a large quantity of water by using a shower or hose if available as quickly as possible. This flooding with water will wash away much of the irritants.

(2) Cut out contaminated clothing.

(3) Do not touch the burnt area.

(4) Treat as for burns.

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CHAPTER-10

Diarrhea

Q.1. What are the Diarrhea.

Ans.: Diarrhea is defined as copious watery motions or three or more motions within 24 hours.

Causes of Diarrhea : Viruses and toxins of micro-organisms cause diarrhea in the majority of cases. In a small proportion of cases, parasites and other digestive disturbances are responsible for diarrhea.

Signs and Symptoms of Diarrhea :

- Frequency of motion is more than usual.
- Consistency of the stool changes from formed to fluid.
- There may be associated pain in the abdomen.
- Stools may be mixed with blood or mucus.
- There may be vomiting.

Q.2. Why is Diarrhea dangerous?

Ans.: The main danger from diarrhoea results from the loss of body water and salts in the watery stools, which can lead to shock and a number of electrolyte abnormalities and eventually death.

Management of Diarrhea :

Principle : Replace the water and electrolytes lost in the stools.

Oral Dehydration Powder packets (WHO Formulation) are available in the market with various brand names and may be used as per the instructions mentioned on the packets. Small frequent feeds of reconstituted oral dehydration solution are advisable. If Commercial Oral Dehydration solutions are not available, then salt-sugar solution can be prepared at home and used instead. Mix 8 teaspoonful of sugar (40 gms) and ¾ teaspoonful of common salt (3.5 gms) in a liter of boiled water and after cooling use as Oral Dehydration solution. If this is not available then coconut water, buttermilk or even plain water may be used until the physician's help is sought.

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CHAPTER-11

Electrical Injuries

Q.1. Define the Electrical Injuries?

Ans.: If any part of the body comes into contact with a live wire or with a cable from which current is leaking then the person gets an electric shock. In houses the blowing out of faulty switches, fuses or faulty electrical connections can cause such injury. The injury may be mild or can be severe enough to cause death. Electric shock is produced only when an electric current passes through the human body, which is in contact with the earth. It passes even more quickly if the part is wet.

In wet conditions, even lower voltages may be dangerous. A very strong current passing through the legs may be much less dangerous than a weaker current passing through the chest especially so when it enters through the arms.

The Effects of Electric Shock :

- There may be fatal stoppage of the heart.
- There may be sudden stoppage of breathing due to sudden paralysis of the muscles of breathing.
- There may be burns that are either superficial or deep. They depend on the strength of the electric current causing the injuries.

Q.2. How can manage of Electric Shock?

Ans.: **Management :** Intelligent and prompt action is required. If the rescuer is not cautious he may also receive severe electric shock or even die along with the patient.

(1) If the patient is still in contact with the source of current switch off the source of current. This should be done with the rescuer standing on a dry piece of wooden board. Do not use a pair of scissors or knife to cut the wire. When the current is of low voltage then the rescuer should stand on an insulated material that is dry. (Insulated materials include rubber-soled shoes, wooden planks, or piles of newspapers.) Rubber gloves if available

should be worn. Dry clothing like a coat or a folded newspaper may give some protection.

(2) When the current is of a very high voltage then the danger is greater even though the patient may not even be in contact with the wire as the current can pass through the gap causing an arc. The rescuer should keep as far away from the electric wires as possible. The patient should be dragged out using a non-conducting material like a wooden walking stick, dry bamboo pole, wooden plank or a dry rope.

(3) If the patient is not breathing properly or the heart has stopped beating, give artificial respiration and external cardiac massage.

(4) Treat for shock.

(5) Treat for burns.

(6) Transfer the patient to a hospital as soon as possible. Remember that even in cases of mild electrical injuries when the patient apparently recovers, he must be examined by a doctor as the effects are sometimes felt only after a while.

Q.3. Define the Heat Stroke?

Ans.: The effects of excessive heat may be either heat exhaustion or heat stroke. Both these conditions are caused by too high a temperature in the atmosphere, but the signs and symptoms are quite different. Humid surroundings also add to the problems. Loss of body fluids and salt is an important factor complicating heat-related problems.

Signs and Symptoms :

Heat Exhaustion	Heat Stroke
Headache, Dizziness, Nausea, Vomiting and occasionally Abdominal Cramps	Occurs suddenly but may follow untreated exhaustion
Unconsciousness follows	Unconsciousness rapid but may come after headache
Face is pale and pulse becomes weak	Pulse is full and bounding. Face becomes flushed. Skin is hot and dry

Temperature Normal or slightly high	Temperature rises rapidly, sometimes more than 107 degrees Fahrenheit
Symptoms of shock	Death may occur if temperature is not controlled

Management :

Heat Exhaustion :

- If the patient is unconscious, follow the general rules of treating an unconscious patient.
- If the patient is conscious, move him to a cool place, give him plenty of salted water (¼ teaspoon of salt to a tumbler of water) and keep him comfortable. Observe for signs of heat stroke.

Heat Stroke :

(1) Bring down body temperature as quickly as possible.

(2) Keep the patient in the coolest possible place.

(3) Remove his clothing and sprinkle cool water (if possible iced) on his body and wrap him in a thin wet sheet and fan him. The temperature begins to fall.

(4) When it gets lower than 102 degrees Fahrenheit, wrap him in a dry sheet and keep fanning him so that the temperature does not rise again. On recovery, treat as for heat exhaustion.

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CHAPTER-12

Foreign Bodies

Q.1. What is Foreign Bodies?

Ans.: A. **Foreign Body under the Skin :** Skin may be pierced by thorns, glass, iron pieces, needles etc.

Management : Unless very easy to deal with, don't interfere. Dress the wound, immobilize the part with splints and get medical aid.

B. **Foreign Body in the Eye :** Wings of insects, dust, coal, metal particles from lathes, wood particles and loose eyelashes are common objects that get lodged in the eye. They cause pain and later redness if they are not removed soon. Sometimes splinters that get lodged in the cornea may cause severe trouble and penetrating foreign bodies are a danger to the eye itself.

Management :

(1) Avoid rubbing the eye. In the case of a child, tie his hands together at the back.

(2) Seat the patient so that light falls on the eye. Pull the lower lid down. If the foreign body is floating and not embedded remove it with a narrow moist swab. The corner of a handkerchief twisted to a fine point will also do.

(3) If the foreign body is not visible, it may be under the upper eyelid. Ask the patient to keep clean water in the hand and blink briskly into the water. If unsuccessful, pull the upper lid forwards, push the lower lid upwards and let go of both the lids. The lashes of the lower lid usually dislodge the foreign body. Try these two or three times.

(4) If the foreign body is embedded in the eye, particularly in the cornea (the black of the eye), don't touch it. Apply a soft pad, ask the patient not to rub his eye and take him quickly to the hospital.

(5) Penetrating foreign bodies are easily made out by bleeding, pain etc. These are for doctors to handle. Just put a pad on the eye and rush to the hospital.

(6) When injury with corrosive acid, alkali or juices from plants are suspected, blinking eyelids under water a number of times or flushing with a large quantity of water is the best thing to do. Then apply a soft pad and take the patient to the hospital at once.

C. Foreign Body in the Ear :

(1) If the foreign body is an insect, fill the ear with glycerine or coconut or mustard oil or warm salt water. The insect will float up and can be removed easily.

(2) If there is nothing floating up, leave it alone, don't meddle at all but get the patient to a doctor as soon as possible.

D. Foreign Body in the Nose

(1) Make the patient breathe through the mouth.

(2) Do not try to remove the foreign body.

(3) If the patient is a child, tie his hands behind his back.

(4) Get the patient to a doctor.

E. Foreign Body in the Throat :

(1) Some large, irregular objects may get stuck in the throat. If visible, they may be taken out using the fingers. In a child, hold the child's head downward and tap on the back of the neck and the foreign body may fall out.

(2) In the case of fish bones or thorn these may get lodged by piercing some part of the throat. In these cases, keep the patient calm and get him to the hospital.

G. Foreign Body in the Stomach :

(1) Smooth objects like coins, buttons and safety pins may be swallowed. The stomach and the intestines most often adjust themselves in such a way as to expel them. There is most often no need to panic.

(2) Get the patient to see a doctor. Laxatives like bananas need not be given routinely.

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CHAPTER-13

Dog Bite

Q.1. Define and management of Dog Bite?

Ans.: Define : Dog bite could sometimes be very serious. In addition to the risk of rabies there is the additional risk of infection. If the animal is suffering from rabies there is the possibility of it being transmitted to the person bitten. This condition is also called *hydrophobia*. The dog that bites a person should not be killed. It should be kept under observation for a ten-day period. If the dog remains healthy after this period then the risk of rabies to the person bitten is low. However, there is still the threat of rabies occurring sometimes, months or years after the bite even if the animal does not die during the ten-day period.

The aim of First Aid in a case of dog bite is to prevent rabies, to reduce the risk of infection and to get medical aid as soon as possible.

Management :

(1) Wipe the saliva away from the wound using a clean cloth or handkerchief. Do not come into contact with the saliva that gets wiped away.

(2) Wash the wound thoroughly with plenty of soap and water.

(3) Cover the wound with a dry, sterile dressing. Do not put carbolic acid, nitric acid etc. on the wound.

(4) Get medical aid or send the patient to the hospital as soon as possible.

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CHAPTER-14

Burns

Q.1. Define and management of Snake Bite.

Ans.: Define : There are more than 2500 different kinds of snakes. Only about 200 of them are venomous. All snake bites are not fatal. Only a very small quantity of venom may have been injected and some people may even die not from the venom but from fear.

The aim of First Aid is to reassure the person, take steps to stop the spread of the venom and to obtain medical aid.

Management :

(1) Make the patient lie down, give him complete rest, calm and reassure him.

(2) Do not make him walk.

(3) If the bite is on the arm or leg, apply a constrictive bandage on the heart side of the bite tight enough to obstruct and stop the flow of the venom to all parts of the body. Don't tie it too firmly.

(4) If water is not available and you have no cracks on your lips, tongue and the inside of the cheeks, you can suck the wound and spit out the poisonous material repeatedly.

(5) Wash the wound with soap and water. Flush the wound with a lot of water.

(6) Cover the wound with a sterile dressing.

(7) Get medical aid or send the person on a stretcher to the hospital as quickly as possible. If the snake has been killed carry it to the hospital for identification. Should breathing fail, commence artificial respiration.

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CHAPTER-15

Poisoning

Q.28. Define and management of Poisoning?

Ans.: Substances which when taken into the body cause damage to health or death are called poisons. Poisons can get into the body by one of the following routes:

- By swallowing
- By inhalation
- By injection
- By contact with the skin

Management :

(1) Removing the patient to the hospital or a doctor is the highest priority and needs to be done as quickly as possible.

(2) Preserve the packets or bottles of the suspected poison and also any of the vomitus, sputum etc. for the doctor to examine.

(3) If the patient is unconscious, do not induce vomiting.

(4) Make the patient lie on his back on a hard, flat bed without any pillow and turn the head to one side. As there is no pressure on the stomach and the gullet is horizontal, the vomited matter will not get into the air passages. This is also a good posture for giving artificial respiration if needed.

(5) Sometimes when there is excess vomiting the three quarter-prone position (when the patient is made to lie on his side with one leg stretched and the other bent at the knee and the thigh) will make things easier for the patient.

(6) If the breathing is very slow or has stopped, start artificial respiration and continue till the doctor comes.

(7) If the patient is conscious, and the poison is not a corrosive, aid vomiting by tickling the back of the throat or make him drink tepid water mixed with two table spoonfuls of common salt for one tumbler of water.

(8) When the poison is a corrosive do not induce vomiting. Signs of corrosive poisoning include greyish white or yellowish burn patches around the lips and mouth.

(9) Certain poisons need to be diluted by giving large quantities of cold water (iced, if possible). This will dilute the irritant and delay the absorption and will replace the fluid lost by vomiting. However, this should be done only for some poisons and not as a general rule. (See table below)

(10) For certain poisons soothing drinks like milk, egg beaten and mixed with water or Sujee Conjee are good for the purpose. (See table below)

(11) For several poisons specific antidotes are available and it is essential that one seeks information about these antidotes.

Some Common Poisons and the First Aid for them :

Poison	Source	First Aid
Arsenic	Rat Poisons, Weed Killers	Induce vomiting and give soothing drinks.
Aspirin	Aspirin Tablets	Induce vomiting. drink of soda bicarbonate (one tsp. to a tumbler of Water) to be given. Strong coffee or tea may be given.
Carbon-Monoxide	Charcoal Stove, Gas Stove, Exhaust gases of cars	Apply artificial respiration. Give Oxygen.
Sleeping Tablets	Chemists	Induce Vomiting. Give Magnesium Sulphate. (2tsp. in water). Give hot coffee. Keep the patient awake.
Mercury	Calomel, Teething Powders, Mercury	Give white of egg in water. Later give milk. Then induce vomiting.
Lead	Paints, Hair Dyes, Pencils	Induce vomiting. Then give Magnesium Sulphate in water.
Opium and Morphia	Hospitals, Some Chemical Mixtures, Opium addicts.	Put a few crystals of Potassium Permanganate in

		a tumbler of water and give as a drink. Give hot coffee. Keep the patient awake.
Petrol, Paraffin, Kerosene	Houses, Garages, Oil Industry	Induce Vomiting. Give a large quantity of water or tender coconut. Liquid Paraffin if available is preferable to water in cases of Kerosene Oil poisoning.
Poison	**Source**	**First Aid**
Phosphorous	Rat Poisons and Match Heads	Induce vomiting. Give a large quantity of water or tender coconut. Never give oils as they will dissolve the phosphorous and increase the effect of the poison.
Prussic Acid	Photography or Electroplating Industries, Oil of Bitter Almonds, Tender Bamboo shoots	Emergency. Act at once. Induce vomiting. Begin artificial Begin artificial respiration.
Strychnine	Some vermin killers	Induce vomiting if there are no spasms. If breathing is irregular or has stopped, give artificial respiration.
Follidol	Bug Killers and Cockroach Killers	Induce vomiting. Give water or or tender coconut. Start artificial respiration if required.

In all the cases please remember that it is essential to get the patient to a doctor or hospital as soon as possible.

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CHAPTER-16

Fractures

Q.1. Define and management of Fractures?

Ans.: A fracture is a complete or partial breakage of a bone. Fractures may be :

- Simple, where the broken ends of the bone do not cut open the skin
- Compound, where the broken end of the bone may be in contact with the external air
- Complicated, where in addition to the fracture an important internal organ may also be injured. A complicated fracture may also be simple or compound.

Signs and Symptoms of a Fracture :

- Pain at or around the site of the fracture.
- Tenderness (pain on gentle pressure) over the area. Do not press hard.
- Swelling over the area with discoloration.
- Loss of normal movements of the affected part.
- Deformity of the limb may be caused. The limb may lose its normal shape and there may be apparent shortening of the limb.
- If, as in the leg bone, the break is just under the skin, the irregular outline of the bone can be felt easily.
- When one end of the broken bone moves against the other, a crackling sound may be heard. This is called *crepitus* (grating). This should never be elicited by the person giving First Aid.
- Unnatural movements may be felt at the site of the fracture. This too should never be elicited by the First-Aid provider.

In addition the victim may himself say that he heard the snap of the bone. It is important to compare the injured limb with the normal limb while making an assessment.

Management of Fractures :

The aims of First Aid here are :

- To prevent further damage.
- To reduce pain.
- To make the patient feel comfortable.
- To get medical aid as soon as possible.

(1) Fractures often occur along with other injuries. So the rescuer must assess for other injuries and decide which of them requires care on priority. Heavy bleeding is more urgent and requires higher priority care over a fracture.

(2) If there is no danger to life then temporary attention to the fracture is often sufficient.

(3) Handle the patient very gently. Avoid all unnecessary movement.

(4) Treat for shock if present.

(5) If the broken ends of the bones show out, do not wash the wound or apply antiseptics to the end of the bone.

(6) Do not handle the fracture unnecessarily.

(7) Never attempt to reduce the fracture or to bring the bones to the normal position.

(8) Stabilise and support the injured part so that no movement is possible. This stops further injury and helps to control the bleeding.

(9) Immobilise the fracture area and the joints on both sides of the fracture site (above and below) by using bandages or by using splints wherever available. It is essential that the rescuer be familiar with the use of bandages and splints.

A. **Using Bandages :** Usually it is enough to use the other (uninjured) limb or the body of the victim as the splint. The upper limb can be supported by the body, and the lower limb by the other limb provided that also is not fractured. Most fractures except those of the forearm can be immobilised in this manner :

- Do not apply bandage over the area of the fracture.
- The bandaging should be firm so that there is no movement of the fractured ends but should not be too tight as blood circulation to the affected area could be reduced. If there is further swelling of the injured area, the bandage may be too tight and therefore may need to be loosened.

- Always place padding material between the ankles, knees and other hollows if they have to be tied together so that when the limbs are bound together they are comfortable and steady.
- If the patient is lying down, the bandage should be passed through the natural hollows like the neck, the lower part of the trunk, knees, just above the ankles etc., so that the patient's body is not jarred.
- Always tie the knots on the sound side.

B. Using Splints : Splints are used only when necessary expertise is there.

- A splint is a rigid piece of wood or plastic material or metal applied to a fractured limb to prevent movement of the broken bone.
- Reasonably wide splints are better than narrow ones.
- Splints should be long enough so that the joints above and below the fractured bones can be made immobile.
- The splints should be well padded with cotton or cloth so as to fit snugly and softly on the injured limb.
- Splints are best applied over the clothing.
- In an emergency, splints can be improvised using a walking stick, an umbrella, a piece of wood, a book or even a firmly folded newspaper.
- Use of splints becomes obligatory only when both legs or both thigh bones are broken.

Fractures involving the back (vertebral column) require special care. In such cases, the victim should not be allowed to get up. Further, movement must be avoided as much as possible and emergency medical help must be sought.

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