ALKAN HEALTH SCIENCE BUSINESS AND TECHNOLOGY COLLEGE
Department of Nursing
PROGRAM TVET
TITLE: Health care giving level-II (Year 1)
MODULE TITLE **Provide Basic First Aid**

Introduction to first aid

Definition: first aid is the initial assistance or treatment given to an injured or sick person before professional medical care becomes available, with the materials at hand.

Reason for first aid:

- ***To preserve (sustain) life.***
  e.g. – mouth to mouth respiration, control of breathing & shock
- To prevent worsening of the problem (complication)
  e.g. – immobilizing the fractured bone
- To promote healing & recovery
  Ex- to place the causality in correct & comfortable position
  - reassure patient
  - providing other needed Rx
  - relieving pain
  - arrangement of pt. transfer

Values of first aid training

The needed for first aid training is greater than ever because of population growth through out the world &due to the increased use of technological products; such as mechanical & electrical appliances in everyday use at home, working place & play areas w/h makes more people are risk of injury. Thus, there is an ever growing demand for first aid training for personal use & from the demand for certificate first aiders as part of industrial & commercial establishments.

General direction to give first aid:

Responsibility of a first aider in the management of causality

- Assessment of the situation.
- Arriving at a diagnosis for each causality
- Giving immediate & adequate Rx, bearing in mind that a casualty may have more than one injury & the same casualties will require more urgent attention than others(to give priority).arrangement or the transport of casualty according to seriousness of his condition with out delay.

Assessment of the situation

- During this phase the first Aider shoulder be calm, confident in gathering of information about the condition.
- Talk, listen & reassure the client (conscious causality)
- Check safety of casualties & of yourself & check for breathing bleeding &level of consciousness.
- Get others to help

Level of consciousness

- ***Full consciousness:*** - able to speak & answer questions normally.
- ***Drowsiness:*** - easily aroused, but lapses in to unconscious.
- ***Stupor***: - can be aroused with difficulty, the casualty is aware of pain ful stimuli.

  Ex:- pin prick but not of other external element like being spoken to.
- ***Coma:*** - can not be aroused by any stimuli.

❖ ***<u>Diagnosis (Dx)</u>***

- The history (hx) of the incident must be taken in to consideration and an examination made to determine the signs & symptom and level of consciousness.

1. ***History:***- the story of how the accident happened or the illness began can be obtained from:
   - The casualty (ex- I slipped & fall down).
   - A witness or a bystander (s) whether he/she saw the happenings.
2. ***Symptoms:*** - sensations & feelings that are described by the causality. E.g. I feel pain, I feel cold, my arm is numb & etc…
3. ***Signs***: - variations from normal ascertained by the first aider.

   Ex- Pallor of the inner surface of the eye lid or nail beds, blueness (cyanosis) of face, lips, fingers & toes. There may be evidence of

poisoning. E.g. medications, alcoholic smell, bottles & other containers beside the victims.

- ***Action:*** if the cause of the condition is still active, remove the cause.

  EX- a log of wood on the casualties leg remove the casualty from the cause, such as traffic fire, water and poisonous fumes. Etc…

UNIT TWO

RESPIRATORY EMERGENCIES AND ARTIFICIAL RESPIRATION:

RESPIRATORY EMERGENCY: - is one in w/h normal breathing stops or in w/h breathing is reduced so that oxygen in take is insufficient to support life.

ARTIFICIAL RESPIRATION:-is a procedure for making air to flow in to and out of a person's lungs when his/her natural breathing is inadequate or ceases.

Breathing process:

Natural breathing is accomplished by increasing & decreasing the capacity of the chest and the lung.

- ***Ventilation of the lung depends on:***

1. Adequate atmospheric oxygen
2. Clear air passage
3. Adequate pulmonary compliance & recoil.
4. Regulation of respiration – include both neural & chemical controls.

Common cause of respiratory failure:

A. anatomical obstruction:

The most common caused of respiratory emergency is interference with breathing caused by the drooping of the tongue back & obstructing the throat. Other causes of anatomical obstructions that causes obstruction of the air passage are:

- Asthma
- Croup
- Diphtheria
- Laryngeal spasm
- Swelling after burn of the face.
- Swelling of corrosive poisons
- Direct injury caused by below.

B. Mechanical obstruction:

- Obstruction by foreign objects lodging in the respiratory passage. E.g. chocking of food.
- Accumulation of fluids (saliva, mucus, blood) in the back of the throat.
- Aspiration (in halation of any solid or liquid substances)

C. Oxygen depleted air (air containing poisonous (toxic) Gases:

- ***Asphyxia:*** - decreased O_2 in the blood.

  Due to = decreased O_2 in the air.

  = increase in Co (carbon monoxide) or other toxic gas.
- ***Explosion hazard:-***

  - Combustible gases in confined spaces.

D. Other causes:

- Drowning
- Circulatory collapse (shock)
- Heart disease
- Strangulation
- Lung disease e.g. pneumonia.
- Poisoning
- Electric shock
- Compression of the chest

- ***Mouth – to - mouth (mouth – to nose) breathing (kiss of life)***

A. Mouth - to – mouth

Steps:-

1. Determine consciousness by tapping the victim on shoulder & asking loudly “are you ok?”
2. Tilt the victim’s head back with chins positioning up ward.

   ➔ Head tilt & neck lift or head tilt & chin lift.
3. Place your check & ear close to the victim’s mouth & nose & check for exhalation, at the same time look at the victim’s chest for movement.
4. If there is no breathing, pinch the victim’s nostrils shut with the thumb & index finger of your hand (for mouth to mouth) method.
5. Open your mouth.
6. Take a deep breath.
7. Seal your mouth tightly around the victim’s mouth and with.

8. Initially give four quick full breaths with out allowing the lungs to fully deflate (empty) b/n each breath.
9. Maintain the head tilt & again look, listen & feel for exhalation of air & check the pulse for at least 5 seconds but not more than 10 seconds. If no pulse & breath do CPR, if there is pulse & no breath, provide at least one breath every 5 seconds for adults. If the air way is clear only moderate resistance to blowing will be felt.
10. Watch the victim's chest to see when it rises.
11. Stop blowing when the victim's chest in expanded & check for exhalation.
12. Watch the chest to see that it falls.
13. Repeat the blowing cycle.

N.B: for infants & children the back ward tilt should not be extensive & both the mouth & the nose should be sealed off by your mouth.

- for infant the below should be every 3 seconds (20/min)
- for children the below should be every 4 seconds (15/min)

B. Mouth – to – nose breathing

- If mouth- to mouth is not desirable or possible mouth – to nose can be done by closing them out with one palm & breathing in to the nose. The position is the same with the former one.

C. Mouth – to barrier device

- There are two broad categories of barrier devices can be available.
  1. Mask devices
  2. Face shields
- Position the barrier device over the patient's mouth & nose, ensure an adequate air seal, and initiate mouth – to – barrier device breathing.

❖ **Cardiopulmonary resuscitation /CPR (external cardiac massage).**

- Is a combination of artificial respiration & manual artificial circulation.
- CPR involves ABC steps:
  A. Air way opening
  B. Breathing restored.
  C. Circulation restored.
- ***Steps***:-1. Lay the patient on a firm flat surface
  2. Kneel close to his side, at right angle to him & along side his chest.
  3. Press the lower third of his breast bone sharply with the heels of your hands, using pressure from your shoulders.

Do bend your arms at the elbows.

4. Check the carotid pulse ever few minutes to see if the heart beat has restarted. If you are succeeding the pupils of the pt's eye will begin to get smaller. As soon as he revives, his neck (carotid artery) & heart recover, pulsate continuously, his/ her enlarged pupil shrinks to the normal size.

For adults: - apply pressure 60-80 times per minute by using the heels of two hands placed one over the other.

In children: apply pressure from 80-90 per minutes by using the hel of only one hand.

For infants: - apply pressure 100 times/ min using two fingers.

- ***Resuscitation may consist of:***

1. Simply opening an obstructed airway, or full mouth to mouth artificial respiration and.
2. Cardiac massage or chest compression (closed chest cardiac massage to assist in circulation w/h presses the heart b/n the sternum & the spine to squeeze blood out of it.

Air way obstruction

Un conscious victim:-

- If there is no exchange of air after artificial respiration turn the victim on his side towards you, resting his chest against your knees & administer four sharp blows b/n the scapulas, then place the victim in supine position & spread leg wide apart, straddle his hips or one thigh, which provides comfort for the first aider
- Open the victims air way & sweep with the fingers
- If the procedures are ineffective, repeat the sequence

Conscious victim:

- Do not interfere with the victim's attempt to expel a foreign body
- If the victim's can't speak or cough, shows a distress signal, appears cyanotic, or reveals an exaggerated effort to breath, you must intervene appropriately**.**

Ex. (Heimlich maneuver)

Prevention of respiratory accidents:

- Restrict children from running walking or playing with food or foreign objects in their mouth.
- Keep small children away from small objects.
- Avoid feeding popcorn, peanut & others for < 3 years.

- Cut foods in small pieces teach parents & care givers in the prevention & management.
- Chew thoroughly.
- Avoid laughing & taking while swallowing & chewing.
- Avoid excess alcohol before & during meals.

Drowning accidents:- can be caused after boating accidents, falling in to water while fishing, lack of knowledge to swim etc.

Prevention: - make supervision while people are swimming or playing.

- Never swim alone or don't stay in the pool unless there is no supervision.
- Give water safety training at the young age.

Prevention of mechanical suffocation:

- Prevent not to be wrapped by thin plastic materials
- In infants: prevent the body of sleeping parent.

Gases: - keep out of smoking gases & toxic fumes like co & other poisonous gases & use protective mask & an auxiliary supply of contained oxygen.

UNIT THREE

WOUNDS

Defn- wound is any abnormal damage or break in the continuity of the skin & or the mucus membrane.

Classification of wound:

1. **Closed wound-** is a wound that allows the blood to escape the circulatory system but not from the body as the skin is intact.
2. **Open wound –** is a break in the skin through which blood & other fluids may be lost from the body & germs may enter & cause infection.

Types of wounds according to the mechanism of injury

1. **Incised wound-** a clean cut from a sharp edge such as blade & broken glass.
2. **Laceration –** a rough tear by crushing or ripping forces such as machinery more contaminated & risk for infection.
3. **Abrasion** – a superficial top layers of the skin are scraped off, commonly caused by a sliding fall or friction.

4. **Contusion** – (it is also called bruise) – is a wound caused by a blunt blow force such as stick bite. The blood vessels may rupture & bleed under the skin but sometimes the skin may be split.
5. **Puncture** – is a deep wound with a narrow entry caused by sharp objects such as being stabbed by nail or needle.
6. **Avulsion-** it results when tissue is forcibly separated or torn off the victim's body
   - an incised, lacerated or both wounds usually occur when a body part is avulsed.

   - There will be heavy and rapid bleeding
   - An avulsed body part may be reattached to a victim's body by a surgeon. Send the body part along with victim to the hospital.
   - It occurs in accidents such as motor vehicle, destruction, gunshots, explosion, animal bites and other crushing injuries.

Causes of wounds

Intentional (therapeutic)	**Unintentional or accidental**
- Venipuncture	- Falling
- Operative procedures	- Car accident
	- Gunshot
	- Machinery accidents
	- Fighting injuries etc.

Sign & symptoms of wound

Local symptoms like – redness, heat, swelling, pain, loss of function, & suppuration with signs of bleeding & discontinuity in the skin integrity will appear.

First aid for open wounds

1. Remove the casualty's clothing over the wound.
2. Stop bleeding, if any visible bleeding present.
3. Cleanse the wound with soap & water thoroughly or clean it with antiseptic solution if available.
4. Cover the wound with sterile dressing or clean pad.
5. Send or take the casualty to hospital.

First aid for severe bleeding

Types of bleeding

1. **Arterial bleeding** – is a harmful bleeding from the artery the blood is bright red in color due to well oxygenation. In several arteries the blood may flow for away could be measured in meter (S), & can rapidly empty the circulation of blood.
2. **Venous bleeding-** significant amount of dark red colored blood flow under less pressure. The blood from a severed major vein may gush profusely.
3. **Capillary bleeding** – is characterized by oozing occurs at the site of wounds. At first the blood loss is generally negligible & at risk. They occur too in a closed bruise (contusion).

Sites of bleeding

There are different & special sites of bleeding which has a slight variation in bleeding pattern & Mgt to handle those problems.

1. ***Scalp*** – is rich in blood supply & if damaged could bleed profusely
2. ***Palm*** – the palm too is richly supplied with blood & can bleed severely.
3. ***Joint creases*** – inside part of the joints
4. ***Bleeding from varicose vein*** – due to abnormal distension of the distal veins at the calf.
5. ***Internal bleeding*** – can be caused following injury such as a fracture or a penetrating wound. But can also occur spontaneously – e.g. bleeding from the stomach ulcer.
6. ***Bleeding from the ear***
7. ***“ “ the mouth***
8. ***“ “ the nose***
9. ***Vaginal bleeding***

Techniques to stop sever bleeding:

- The aim is to stop any rapid loss of blood & to treat for shock & prevent death.

A. Direct pressure:-

- By **placing** the palm of the hand over a thick pad directly on the entire area of an open wound, care should be taken to prevent HIV/AIDS.
- Manual pressure over the main artery, nearest to the bleeding point & direct pressure should be applied in case of very sever bleeding.

B. Elevation:-

- Unless there is evidence of a fracture, a severely bleeding open would of the hand, neck, arm or leg should be elevated above the level of the victim's heart which returns blood vital organs.

C. Pressure on the supplying artery:

- For severe bleeding from an open wound of the arm or leg
- It is by using the pressure point technique by pressing the main artery against the under-lying bone & near by tissues

D. Tourniquet:-

- Is very dangerous
- Should be used for a severe life threatening hemorrhage that can not be controlled by other measures.
- The tourniquets should be released every 15 minutes.

❖ **Prevention of contamination & infection of Wounds:**

- Practice strict a-septic techniques to reduce transmission of micro organisms.
- All articles, touching the wound should be sterile.
- If soakage is present, dressing should be change frequently
- Separate instruments should be used for each dressing drainage from the wound should be measured, notified & recorded.

BITES & STINGS:

Bites- Injuries produced by bites may cause punctures, laceration or avulsions.

- There may be a danger of infection as that of rabies, & also tetanus following deep puncture wounds.

A. *Insect Bites*:- Insect bite is wound or inflammation made by an attack of insects. They are usually painful & alarming than they are dangerous. Some people, how ever, are allergic to this poison & can rapidly develop the serious condition. There are many kinds of poisonous biting insects. Of these:

E.g. - Scorpion
- Spider
- Tick
- Hymenoptera (bees, wasps & hornet) bite are the common ones.

**** First aid For Different insect Bites.***

- Remove stinger if it presents using finger nails or forceps to prevent injecting further venom
- Cool the area as quickly & efficiently as possible to prevent the venom from giving access to the general circulation.
- Clean the wound (the area) thoroughly with soap & water or antiseptic solution.
- Elevate the extremity with large edematous reaction.

B. Snake Bite- all snack should be considered poisonous, although only a few secrete an amount of venom sufficient to inoculate poison deeply in to the tissue

Many venom contain toxins that are cardiotoxic, neurotoxin, or hematotoxic. Venom is injected by the fangs of the snake; the ducts of the fangs are filled with venom that is manufactured in the salivary glands.

- The most common site for snake bite is an extremity that is close to the snake (e.g. an arm or a leg).

First aid Measure:

- Ensure ABC, Having the victim lie down, removing constrictive items such as rings, providing warmth, cleaning the wound, covering the wound with a light sterile dressing & immobilizing the injured body part below the level of the heart. Ice or a tourniquet is not applied.
- Place a loose constriction band 4 inches proximal to the bite if within 30 minutes of the bite. (Once applied, do not remove in the field).
- Early incision & wound suction.
- Do not allow the Pt. to smoke.

C. ANIMAL BITE: - May result in an open wound.

- The most common bites are dog & cat bites.
- There is no know cure for rabies in human beings or animals once symptoms develop

❖ A rabbi is a viral infection w/h can be transmitted from infected animals such as cats & dogs to human being.

- Bites w/h are proximal to brain need immediate medical attention
- Keep the animal under supervision for at least ten days.

- Don't kill the animal unless absolutely necessary

*** First aid Measure:**

- In case of Dog bite-

- Wash the wound thoroughly with soap & water, don't dress & suture the wound.
- Avoid movement of the affected part.
- Refer the victim to medical institution.

D. Human bite:-

- Bites that break the skin may become seriously infected b/c of bacteria's in the mouse.
- Cleanse the wound thoroughly with clean water, dry, cover it & seek medical attention.

UN IT FOUR

DRESSING AND BANDAGING

Dressing: - is covering & protecting the wound with a piece of sterile clothing e.g. using gauze & bandages or adhesives to hold in place.

Purpose:-

- To apply pressure
- To control bleeding
- To protect the wound & prevent infection

Bandaging

Bandage: - is a strip of cloth used to wrap some part of the body.

Purpose-

- To maintain direct pressure over a dressing
- To hold dressing & splints in place
- To limit swelling
- To provide support to a limb or joint
- Restrict movement.

Application of bandage and binders

Bandages:

A bandage is a strip of cloth used to wrap some part of the body:

- Bandages are available in various widths most commonly 2.5 to 10cm
- They are usually supplied in rolls for easy application to a body

Types of materials used for bandages.

- **Gauze-** The most commonly used
  - It is light and porous
  - It is readily moulds to the body.
  - Relatively inexpensive.

Gauze frequently used for:

- To retain dressings on wounds
- To bandage the fingers, hands, toes and feet.

a. **Plastic bandages-** These are applied to provide pressure to an area.

They are commonly used as:

- Tensor bandages or partial stockings
- To provide support
- To improve the venous circulation in the leg.

b. **Plastic adhesive bandages:-** these have an adhesive packing on it and can be secured to the skin.

* Most frequently used to retain dressings and at the same time provide some support to a wound.

Applying bandages

- The width of bandages used depends on the size of the body part to be bandaged.

E.g. 2.5cm bandage is used for fingers.

5cm bandage is used for hand

7.5 – 10 cm bandage is used for arms.

10-15 cm for legs

- Before applying bandage the nurse needs to know its purpose and the area requiring support.

Turns for Roller bandages (Techniques)

1. **Circular turns*:*** - anchor bandage in place by over lapping the previous bandage turn completely.
2. **spiral turns:-** are used to cover cylindrical body parts such as the wrist or arm
3. **Spiral reverse turns:** useful when bandaging the leg, thigh, or forearm, require a twist that reverses the bandaging direction halfway

through each turn.

4. **Figure eight turns –** used over the joints e.g. wrist, ankle, & elbow
5. **Recurrent or stump bandaging:-** is used for the head, digits, or amputated limbs. The bandage is anchored with few circular turns, then turned back over itself, repeating until the distal end of the body part is covered.

Once the end is covered, the bandage is anchored by using figure eight and circular turns.

Binders

A binder is a type of bandage designed for a specific body part.

Binders are used:

- To support large areas of the body such as abdomen, arm, chest
- To hold dressing in place

Type of Binders

1. Triangular Arm binder (sling):- It is usually applied as a triangle to support the arm, elbow, and forearm of the client or to reduce or prevent swelling of the hand.

2. T- Binder (single or double)

T- Binders are used to retain pads, dressings or packs in the perineal area.

Single T- binder often used for female

Double T- binders for males to prevent pressure on the penis

3. Straight abdominal or (scultetus) (many-tailed) binders are used to support the abdomen.

Application of Bandage & Binder

Bandages and binders serve for various

Purposes:

- Supporting a wound E.g. fractured bone
- Immobilizing a wound E.g. Strained shoulder
- Applying pressure E.g. Elastic bandage's
- Securing a dressing
- Retaining splints
- Retaining Warmth

General Principle of Bandaging

- A bandage should be snug (not too tight or loose)
- To ensure that circulation is not interfered with the bandaging.
- Leave the person's fingertips & toes exposed

- Watch for swelling, change of color & coldness of the tips of fingers or toes indicating interference with circulation, indicates nerveous impairment.
- Loosen bandages immediately if the victim complains of numbness or tingling sensation.
- Never apply a tight circular bandage about a person's neck, it may cause strangulation.

Preparing first aid kit

- First aid kit is a components of an equipment used for managing an emergency condition.

First aid kits should be kept in your home, your car, & in the work place. A work place kit must be readily accessible, and must contain certain items, depending on the nature of the business. The materials in a standard first aid kit make a useful basic kit for the home. You may want to add extra dressings & bandages, adhesive strapping, cotton wool, scissors, tweezers, & disposable gloves. Keep first aid kits in dry atmosphere. Chek and replenish your kit regularly, so that you always have items you need to hand.

Basic materials for a first aid kit

- First aid bag
- 10 adhesive dressings (plaster)
- 3 medium – sized sterile dressings
- 1 Large sterile dressing
- 1 Extra large sterile dressing.
- 1 Sterile eye pad
- 2 Triangular bandages
- 2 Crepe roller bandages
- 6 Safety pins
- 2 Scissors
- 1 Tweezer
- 2 Torniquet
- Iodine solution

- Alcohol solution
- Savlon solution
- Cotton rolls

3.4. Taking Care of Patient with Spinal Cord Injury

* ***Spinal cord injury*** – is an acute traumatic damage to the spinal cord.

The spinal cord is delicate and, if damaged, loss of power or sensation can occur in parts of the body below the injured area.

UNIT FIVE
SPECIFIC INJURIES:

5.1- Eye, Head & Neck Injuries:

- **EYE INJURY:-**Eye injury causes structural damage to the eye & is produced by mechanical force or contact with a corrosive chemical. Some common types of eye trauma are corneal abrasions, blunt trauma, perforating injuries, and chemical injuries.

First aid measure

- Advise the casualty not to rub her/his eye
- Sit her down facing the light
- Gently separate the eyelids with your finger & thumb. Examine every part of her eye, by asking her to look right, left, up and down.
- If you can see the foreign body wash it out using a glass or an eye irrigator & clean water (sterile, if possible)
- If this is unsuccessful & the foreign body is not stuck in place lift it off with a moist swab, or the damp corner of a tissue paper or clean handkerchief.
- If the object is under the eyelid, grasping the lashes, pull the upper lid over the lower lid. Blinking the eye under water may also make the object float clear.

Precautions of foreign body removal from the eye:

- Do not touch any thing sticking to, or embedded in, the eye ball, or on the colored part of the eye.
- Cover the affected eye with pad, bandage both eyes, then take or send the casualty to hospital.

- **HEAD AND NECK INJURY**

- All injuries to the head & neck are potentially dangerous, and always require medical attention, particularly if sever enough to cause impaired consciousness. This may indicate damage to the brain, damage to blood vessels inside the skull, or skull fracture.

First Aid for Suspected Brain Injury

- Place the casualty in the recovery position. Monitor & record breathing, Pulse, and level of responsiveness.
- If the casualty remains unconscious after three minutes, dial for an ambulance.
- Monitor ABC.

○ **WOUND OF THE CHEST**

- The most common cause of chest injuries are fracture of ribs.
- Penetrating trauma to the chest will have sever & perhaps life threatening injuries. It is essential that the patient's condition be assessed rapidly & life saving therapeutic interventions applied concurrent with findings in order to reduce morbidity & mortality. Many life threatening conditions can be reversed if they are identified early & interventions are rapid.

A gun shot or stab wound just below the nipple may involve the skin, connective tissue, muscle, ribs, pleura, lung, & liver.

The thoracic cavity contains the lower air way; the mainstem, right & left bronchi, the lungs, heart, the great vessels & the esophagus. It is surrounded by twelve pairs of ribs that provide protection & structure.

First aid measure

- Immediately use the palm of your hand or if he is conscious, the casualty's hand to cover the wound.
- Apply air tight dressing.
- If he/she becomes unconscious, check ABC, & be prepared to CPR if necessary.
- Place the victim in recovery position.

○ **ABDOMINAL INJURIES**

- Abdominal injuries account for a large percentage of trauma related injuries & deaths. The visceral organs contained within the abdomen can be classified as either hollow or solid. Damage to a hollow organ can

result in acute peritonitis leading to shock within a few hours, & damage to a solid organ can result in lethal hemorrhage.

First aid measure

- Air way management
- If the Pt is comatose, immobilize the cervical spine after cervical films are taken & cleared.
- Apply compression to external bleeding in order to stop bleeding
- Cover protruding abdominal viscera; do not attempt to replace the protruding organs in to the abdomen. Use sterile saline dressings to protect viscera from drying.
- Cover open wound with dry dressing & cover by bandages.
- If the casualty coughs or vomits, press firmly on the dressing to stop abdominal contents pushing through the wound.

BACK INJURIES

- Possible injuries to the back include fracture of the bones of the spine, a displaced intervertebral disc, muscle strains, and ligament sprains. The chief danger with any back injury but particularly fractures & disc injuries, is that the spinal cord or nerves may be damaged.

The danger of any spinal injury is that the spinal cord may be affected. The spinal cord is delicate &; if damaged loss of power or sensation can occur in parts of the body below the injured area.

First aid measure

- Check ABC, position the casualty to resuscitate b/c it takes the priority than the injury.
- Reassure the causality & tell her/him not to move.
- Immobilized the fractured part to reduce further damage.
- Immediately arrange transportation or removal to hospital.

- If removal is delayed & neck is participated in injury, apply a collar. You must continue to hold the head & neck while & after, the collar is fitted.

UNIT 6

SHOCK

- Shock is the common manifestation in a wide variety of disease process that present as an immediate threat to life. simply defined, shock is inadequate tissue perfusion.

Classification:

Shock classified as

1. Hypovolemic shock.
2. cardiogenic shock.
3. Septick shock
4. Other types-include spinal shock, neurogenic shock, anaphylactic & Hypolacemic shock.

CAUSES; - Hemorrhage

- ❖ Sever vomiting & diarrhea.
- ❖ Burn
- ❖ Infection
- ❖ Heart attack & stroke
- ❖ Poisoning by chemicals gases, alcohol or drugs.
- ❖ Other cause like stress, pain Temperature instability and delay of treatment..

Sign & Symptom

- Place or bluish skin & Mucus membrane cold extremities to touch .
- Moist & Clammy skin.
- Weakness
- Rapid & weak pulse & too faint to fell at the wrist but perceptible in the carotid artery.
- Rapid & shallow breathing especially in case of abdominal and chest injury.
- Low blood pressure.
- Restlessness, anxiety severe thirst.
- The victim's eyes are sunken with a vacant expression & his pupils may be totally dilated.
- Unconsciousness and hypothermia finally death.

Treatment Objectives

- To identify and treat the cause
- To improve circulation
- To ensure an adequate supply of oxygen.
- To maintain normal body temperature.
- To transfer the patient to health facility immediately

First aid measure

A. Body position.

- It must be based on type of injuries. The most satisfactory position for the injured person will be lying down to improve the circulation of the body.
- If injury is on the neck or spin, don't move the victim until he is prepared for transportation.
- A victim with sever wounds of the lower part of the face and jaw or who is unconscious should be placed on his side to facilitate drainage of fluids & to avoid air way blockage.
- A Personal with a head injury may be kept flat or propped up.
- Raise foot of the stretcher or bed from 20-30 inches for there types of injuries.

B. Regulating body Temperature

- Keep the victim warm enough to avoid or over come chilling if the victim is exposed to cold or dampness, blankets or additional clothing should be placed over and under him to prevent chilling.

UNIT SEVEN

BONE AND JOINT INJURIES

Fracture: - a fracture is a break or crack in the continuity of bone.

Sign & symptom

- The victim may have heard or felt a bone snap.
- Pain, swelling, tenderness & difficulty of moving the injured part.
- Grating sensation of broken bones rubbing together.
- Difference in shape & length of corresponding bones on the two sides of the body.
- Obvious deformities.
- Discoloration.
-

Objectives of First Aid

- To provide all necessary first aid care.
- To keep the broken bone ends & the adjacent joints from moving
- To give care for shock.

First Aid Principles

- Rescue if necessary and protect against further injury.
- Maintain an open air way & apply artificial respiration if indicated.
- Call for an ambulance or medical assistance if indicated.
- Prevent movement of the injury parts & the adjacent joint.
- Elevate involved extremities if possible with out disturbing the suspected fracture.
- Apply splint if ambulance service is not available, and if medical assistance for diagnosis & Rx is delayed. If an open fracture is evident or suspected treat the wound as outlined previously & do the following.
  - Remove or cut away the victim clothing.
  - Control hemorrhage by applying pressure through a large sterile or clean dressing over the wound.
  - Don't wash, or probe or do not insert your fingers in to the wound.
  - If a fragment of bone is protruding, cover the entire wound with sterile dressing.
  - Do not replace any bone fragments.

SPLINTING

- Splints are devices applied to the arms, legs or trunk to immobilize the injured part when a fracture is suspected. They also protected against further injury

during transportation for medical treatment. There are many varieties of splints commercially available & they can also be made locally from different materials.

- ❖ The splint should be long enough to extend past the joints on either side of a suspected fracture.
- ❖ It should be adequately padded b/n the splint & the especially over bony places.
- ❖ It can be held in place by stripes of clothes & other available materials.
- ❖ Joint must be immobilized above & below the location of the fracture.
- ❖ In fracture of arms, check for pulse; inspect the fingers for color & swelling which is good indication for a bandage that is too tight.
- ❖ If there is numbness, tingling sensation, or in-ability to move fingers or toes loosen ties immediately; otherwise permanent nerve damage may result.
- ❖ Inform the victim not to move the part below the fracture site.
- ❖ Never test for fracture by moving the victims broken body part.
- ❖ Straighten & splint a deformed limb as necessary.

Specific Fracture

A. Fracture of the scapula (should blade):

- Fracture of the scapula is generally the direct result of the impact of a fall or an automobile collision. Dislocations of the shoulder joint, sprains & contusions are common in this area. First aid consists of applying a sling & bandaging the victim's upper arm to his chest wall.

Fracture of the scapula

- Fractures of the clavicle usually occur in the weakest position, which is one third of the distance from the tip of the shoulder to the sternum.

First aid measure:

- Consist of applying a sling to elevate the arm & shoulder blade.
- Apply figure of eight bandaging

Fracture of the humaerus (the bone in the upper arm):

- Place a pad in the victim's armpit, apply a splint or improvised.
- Split tied in place above & below the break area.
- Support the fore arm with a sling that doesn't produce up ward pressure at the fracture site.

First aid measure for an open fracture:

- ❖ Cover the wound with a large sterile or clean dressing & apply a splint that does not press against the area of the break.
- ❖ Do not attempt to cleanse the wound.

Fracture of fore-arm and wrist

- ❖ The two bones of forearm (urea & radius) may be fractured individually or together.

First aid measures

- ❖ Factures in the mid portion of the forearm & wrist are treated in the same way as fractures of the shaft of the humerus.
- ❖ Immobilize the broken bone ends at the wrist 7 the elbow, by applying well-padded splints on each sides.
- ❖ Bend the elbow & apply a sling with a slight elevation keeping the thumb pointing upward.

Fracture of the upper leg:

- Fracture of the shaft of the femur usually result from falls or traffic injuries. The victim is in sever pain & shock & markedly disabled. The foot is characteristically turned outward and the limb shortened owing to overlapping of the bone ends due to muscular spasm.

First aid measures:

- If the victim is to be transported only for short distance on a stretcher, place a blanket b/n the legs & bind them together.
- If you use improvised board splints, they should be well padded and should reach from the victim's armpit on the outer side & groin to below his/her hell on inside aspects.
- The bandages will be tie4d on the following areas: just below the arm pit at the abdomen, at the hip, above & below the fracture site, at the lower leg, ankle & foot with figure of 8.

Fracture of ankle and foot

- The ankle is made up of the lower ends of the tibia & fibula and the first bone of the foot (the talus). Fractures in this area occur most commonly in active sports, in falls, & in motor vehicle accident.

First aid measure

- ❖ Loosen or remove the victim's shoes, & hose (socks) & keep him lying down with his leg elevated.
- ❖ For an open wound apply large bulky dressings.

UNIT 8

POISONING:

- A poison is any substance solid, liquid or gas that tends to impair health or cause death when introduction in to the body or on to the skin surface.
- The risk is high in small children.
- The poisoning may be accidental, intentional or homicidal.

* **FREQUENT CAUSES**:

- Aspirin overdose in children.
- Improper storage & disposal of poisonous materials
- Inhalation or swallowing of poisonous substance.
- Drugs & alcohol combination
- Drug overdoses.

Note: - Poisoning may occur

- ▪ Through the skin (by absorption)
- ▪ Through the mouth (by ingestion)
- ▪ Through the lung (by inhalation)
- ▪ By injection.

SING AND SYMPTOM

- Information from the victim
- Breath odor
- Burns around mouth
- Contraction of the pupil due to overdose of morphine.
- Presence of a container known to cause a poison.

- Sudden onset of pain or illness.
  - Redness
  - Rash
  - Itching

  } For contact poisoning

  - Extremely painful
  - Rapid swelling
  - Discoloration

  } For poisoning through injection.

*** OBJECTIVES OF TREATMENT OF FIRST AID:**

- To dilute the poisonous quickly as possible.
- To seek medical advice from a physician or a poison control centre.
- To maintain respiration or circulation.
- To preserve vital function & seek medical assistance with out delay.

FIRST AID MEASURE:

- To ensure respiration & circulation
- Do not make the patient vomit if the poison is corrosive

  e.g. - ingestion of petroleum

  - Acid or Alkali
- Do not give any thing in mouth & not made to vomit the unconscious patient.
- With all other position made the patient to vomit by passing a finger down the victim's throat

→ The above rules are particularly when the specific poison is not known.
If it is known, Rx may be modified.

- Remove contaminated cloth for contact posing, and wash the contaminated skin with **soap & water** for at least 5 minutes.
- For injection poisoning (snake bites) calm the victim, prevent movement, immobilized the bitten extremity & keep it below the level of the heart, apply a firm but not tight cord above the bite & remove it every 15 minutes, and send the client to medical centre.
- Gastric lavage for ingested poison.

PREVENTING POISONING IN THE HOME

- Keep dangerous chemicals out of children reach
- Keep medicines in a locked cupboard.
- Leave poisonous house hold substance in their original containers- never put them in old soft-drink bottles.

UNIT NINE

BURN

Defⁿ:- Burn is an injury that results from heat, chemical agents or radiation, it may vary in depth, size & severity.

It is estimated that over 60,000 people are hospitalized for burn in juries & 10,000 people die from burn injuries each year. The most common cause of death from burn injuries in the first 48 hours is respiratory problems.

Cause: Carelessness with matches & cigarette smoking.

- Scalds from hot liquids
- Defective heating, cooking& electrical equipment
- Acids or alkalis (chemical burns)
- Intense heat or flame (thermal burns)
- Over exposure to sun or x- ray (radiation burns).

Classification:

I. Based on the depth or degree of the skin damaged.

A. First degree burn

- Results from over exposure to sunlight, contact with hot objects, scalding by hot water.

Signs/symptoms:- Erythema
- Swelling
- Pain & discoloration

Measures: - apply cold water
- apply dressing if necessary

Second degree burns (partial thickness burns).

- Results from deep sun burn, contact with hot liquids, flash burns from gasoline, kerosene.
- More painful.
- ***Signs***:- greater in depth than first degree burns
  - Blisters
  - Swelling over several days.
  - Wet appearance of the surface of the skin

Measures:- immersion in cold water.
- Do not break blisters or remove tissue
- Don't use antiseptics, ointments
- Keep arms & legs elevated if damaged.

❖ ***Third degree burns (full thickness burn):***

- Results from flame, ignited clothing, contact with hot objects, or electricity.

* ***Signs***:- deep tissue destruction
- Complete loss of all layers of the skin
- White appearance.

Measures:- do not remove adhered clothing.
- cover burns with sterile dressings
- keep hands & legs above the level of the heart.
- Arrange transportation.
- Don't apply ointment.
- Since cold intensify shock reactions, do not apply ice water overt it.

II. Based on extent and location of burns(percentage of body surface burnt)

- The effect of a burn on the body fluids depends on the percentage of the body burnt. The larger the area of the body burnt the larger the number of capillaries that will be losing fluid. The fluid loss becomes significant if the burnt area exceeds 10% of the body surface of child or 15% of the body surface of an adult.

RULE OF NINE:

❖ Provides a rough estimate of body surface burnt.
- Head & neck 9% of body area.
- Complete leg 18% of body area.

- The whole of the trunk 36%.
- The arm 9% of body area.
- Genital area 1% of body area.

Head & neck

- Anterior 4.5%
- Posterior 4.5%

Trunk

- Front 18%
- Back 18%

7.1:- GIVING FIRST AID CARE FOR SCALD BURN

Def: - scaled burn is the burn to skin or flesh caused by moist heat & hot vapors ,as steam or to cause a burn with hot liquid or steam.

When the heat applied is approximately equivalent, a scald is deeper than a burn from dry heat & should be treated as a burn. There fore healing is slower & scar formation greater.

Emergency treatment of a scalded area should be the immediate application of cold in the most readily available from, i.e, ice packs or immersion of the part in very cold water. This should be continued for at least an hour.

Purpose of managing scald burn

- To halt the burning process and relieve
- To resuscitate if necessary
- To minimize the risk of infection
- To treat associated injuries.

First aid measure for scaled burn

- Lay the causality down, if possible protecting the burned area from contact with the ground.
- Use the burn with copious amount of cold liquid.
- While cooling the burn, check air way, breathing & pulse & be prepared to resuscitate if necessary.
- Gently remove any rings, watches, belts, shoes, or smoldering clothing from the injured area, before it begins to swell. Carefully remove burned clothing un less it is sticking to the burn.
- Cover the injury with a sterile burns sheet or other suitable material.

- Burns to the face do not need to be covered. Keep cooling them with water to relieve the pain.
- Do not over cool the casualty (e.g. risk of hypothermia)
- Do not remove any thing sticking to the burn, b/c the fear of further damage & introduce infection.
- Do not burst any blister.
- Do not apply lotions, ointment, or fat to the injury.

Complication

Contracture of extremity

7:2 GIVING FIRST AID CARE FOR A PERSON WITH CHEMICAL BURN:

Def: - Chemical burn is the burn to skin or flesh cause by acids or alkalines.

Certain chemicals may irritate or damage the skin, or be absorbed through the skin, causing wide spread and some times fatal damage with in body. Unlike thermal burns, the signs of chemical burns develop slowly.

First aid measure:

- All chemical burns should be flushed with copious amounts of water or normal saline solution immediately after exposure.
- All clothing & jewelry should be removed
- Powdered chemicals should be brushed from the skin before irrigation.
- Neutralizing agents are contraindicated since the chemical reaction may produce more heat.
- If there are chemical burns of the eye, irrigate the eyes with copious amounts of normal saline solution or water for at least 20 to 30 minutes.
- Gently remove any contaminated clothing while flooding the injury. Be sure not to contaminate yourself, use protective gloves if available.
- Take or send the casualty to hospital, keeping a close watch on air way and breathing.

7:4 GIVE FIRST AID CARE FOR A PERSON WITH ELECTRIC INJURY:

- Electrical burns may occur when electricity passes through the body. Much of the visible damage occurs at the points of entry & exit of the current. How ever, there may also be a track of internal damage.

CAUSE

Burns may be caused by a lightning strike, or by low-or high- voltage current. An electric shock can cause cardiac arrest; if the casualty is unconscious; your immediate priority is thus the ABC of resuscitation. The position & direction of entry & exit wounds will alert you to the likely extent of hidden injury, and to the degree of shock that may ensue.

First aid measure for electrical burn victim

- Avoid direct contact with the victim.
- Remove the victim (carefully) from the source of the current.
- If the casualty is unconscious, immediately open the air way, check breathing & pulse, & be prepared to resuscitate if necessary.
- Flood the sites of injury with cold water.
- Place a sterile burns sheet, sterile dressing, or other clean, non-fluffy materials over the burns.
- Call for ambulance. Treat the casualty for shock.

Complication

- A common complication of an electrical burn injury is ventricular fibrillation caused by the passage of electrical current through the myocardium.

N.B. - If ventricular fibrillation occurs, initiate cardio pulmonary resuscitation immediately & accomplish as soon as possible.

UNIT 10

SUDDEN ILLNESS AND UNCONSCIOUSNESS

10:1 HEART ATTACK:

Heart attack usually involves a clot in one of the blood vessels that supply the heart. A heart attack may or may not be accompanied by loss of consciousness. If the attack is severe. The victim may die suddenly.

SIGN AND SYMPTOM:

- ♥ Persistant chest pain usually under the sternum (breast bone)
- ♥ Gasping & short-ness of breath**.**
- ♥ Extreme pallor or bluish discoloration of his lips, skin & fingernails.
- ♥ Extreme prostration

- ♥ Shock (as a rule)
- ♥ Swelling of the ankles which may be an indication of heart disease.

N.B⇒The two principal symptoms are shortness of breath & chest pain.

FIRST AID MEASURE

- ♣ Place the victim in a comfortable position (sitting position).
- ♣ Provide ventilation & guard against drafts and cold.
- ♣ If the victim is not breathing begin artificial respiration.
- ♣ Call for ambulance.

10.2 STROKE (CVA)

♠ Is a sudden loss of consciousness followed by paralysis caused by one of several different mechanisms including hemorrhage in to brain; formation of an embolus or thrombus that occludes an artery ; or rupture of am extra cerebral artery causing subarachnoid hemorrhage.

- It is one of the leading causes of death & disability among adults in developed country.

CAUSE/ETIOLOGY

1. Partial or complete occlusion of a cerebral blood vessel resulting from cerebral thrombosis (due to arteriosclerosis) or embolism.
2. Ischemia related to decreased blood flow to an area of the brain secondary to systemic disease, such as cardiac or metabolic disease.
3. Hemorrhage occurring in the subarachinoid space, or with in the brain substance (intra cerebral).

Manifestation:- Sudden severe headache.

- ✶ Numbness (paresthesia) or loss of motor ability (hemiplegia)
- ✶ Dysphagia (difficulty in swallowing).
- ✶ Altered cognitive abilities.

First aid measure:

- ✶ Insure ABC.
- ✶ Keeps the pt laying flat.
- ✶ Consider an emergency drug & CPR.

10.3 FAINTING (SYNVOPE)

- Fainting is a partial or complete loss of consciousness due to a reduced supply of blood to the brain for a short time.
- It may be a nervous reaction to pain or fright or the result of an emotional upset exhaustion or lack of food.
- More common after long periods of physical inactivity.
- In warm atmosphere.
- Where lack of muscular activity causes a large volume blood to collect in lower part of the body and legs.

SIGN AND SYMPTOM

- Extreme paleness.
- Sweating
- Coldness of the skin
- Dizziness
- Numbness & tingling of the hands & feet
- Nausea
- Possible disturbance of vision.

The aim of first aid care is position the causality so that gravity helps increase the flow of blood to the brain.

First aid measure:

- Lay her/him down with her/his legs raised & maintain an open air way.
- Loosen any tight clothing at her/his neck, chest & waist.
- Turn the head to the side, if it is necessary wipe out his/her mouth.
- Maintain open airway.
- Do not give any liquid unless the victim has revived.
- Do not pour water over the victim face, but you can bath his face gently with cold water.
- Unless recovery is prompt, seek medical assistance.
- Check for and treat any injury that he may have sustained on falling.

CONVULION:-Paroxysms of involuntary muscular contractions & relaxations (jerking) of muscle.

Cause:- In adults, convulsions may be caused by epilepsy heat cramps (febrile) & brain lesions.

EPILEPSY:- is a chronic recurrent paroxysmal disorder of cerebral function, characterized by sudden ,brief attacks or altered conscious ness ,motor activity ,or sensory phenomena.

Cause:- Sudden abnormal discharge of cerebral neurons is not possible in all type of epilepsy.

- Brain tumors, scar tissue remaining from the trauma.
- Ediopatic (un known cause)

First aid measure:

- Keep air way open.
- Give artificial respiration.
- Push away near by objects.
- Don't force a blunt object b/n the victim's teeth, if the victim's mouth is open place a soft object such as rolled hand kerchiefs b/n his/her side teeth.
- When jerking is over loosen the clothing around his neck.
- Keep him lying down.
- After the seizure, allow the victim to sleep & rest.

UNCONSCIOUSNESS:-

- Unconsciousness is a condition in which there is a depression of cerebral function ranging from stopper to coma the lack of awareness of self or any thing surrounding.

  The movements & functions of body & the levels of responsiveness are governed by the nervous system.

  Partial consciousness or unconsciousness in a casualty indicates that there is an interruption of the normal activity of the brain.

CAUSE OF UNCONSCIOUSNESS:

There are many causes of unconsciousness & it can occur as a result of.

1. Head injury
2. Disturbance of the blood supply to the brain as in
   - Fainting
   - Shock or
   - Stroke
   - Heart attack
3. Disturbance of the chemical content of the blood e.g. lack of o_2.
4. Disturbance of the electrical activity of the brain.

N.B⇒ Unconsciousness is not a disease or diagnosis but rather a manifestation of a large number of pathophysiological processes, Including.

- Trauma
- Metabolic disturbance
- Mass lesions
- Infections
- Head & neck injury
- Drug over dose
- Meningitis
- Encephalitis
- Diabetic coma
- Liver failure
- Cardiac arrest
- CVA
- Uremia

Sign & Symptom

- Unarousable state.
- Altered neurological & vital signs.
- Papillary changes
- Involuntary movement
- Flaccidity of muscles with depressed reflexes.
- Unresponsiveness to a painful stimulus.

First aid measure:

- The most important function of the first aider is to ensure that the casualty's air passages remains open & clear.
- Open air ways remove any obstruction, loosen tight clothing, check for breathing & continue ABC if required.
- Examine the serious injury quickly.
- Control any severe bleeding or support for fracture.
- Assess level of responsiveness.
- Place the casualty in recovery position.
- Cover with a blanket.
- Take to hospital very urgently, while continuous V/S assessment is necessary.
- Do not attempt to give any thing by mount & do not leave him unattended.

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