UNIT 3 POISONING AND ACCIDENTS

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3.0 OBJECTIVES

After reading this unit, you will be able to:

- identify common types of poisoning, their risk factors and outline appropriate treatment;
- a list motor vehicle accidents common in elderly and institute appropriate emergency treatment; and
- describe why elderly patients fall and discuss risk factors responsible for fall.

3.1 INTRODUCTION

With the availability of vast number of chemicals and drugs, acute poisoning is a common medical emergency. Since the proportion of elderly population is growing. its incidence is bound to rise. However, exact estimates are not available from lndia. In this unit, we intend to familiarize you about the management of an elderly patient with acute poisoning.

The commonest poisons in north lndia include insecticides (organophosphates and carbamates) and fumigants (aluminium phosphide), while in south India, plant poisons are common. Acute poisoning with drugs is more common in the elderly as compared to younger adults. This information is useful in instituting proper therapy early in the course of management.

Injury is one of the leading causes of mortality in the elderly. The commonest causes of injury include falls and motor vehicle accidents. In the management of an injured patient, knowledge and technical skills need to be applied under the pressure of time, and often, actions during the initial phase of management determine the outcome of a case. In the care of geriatric trauma patients, the multitude of factors involved in injury secondary to the effects of aging to tissue structures and functions need to be understood.

3.2 POISONING IN ELDERLY

The risk of poisoning is greater in the elderly population as compared to the young adults. This is due to various factors which arc listed in Table 3.1.

Table 3.1: Factors increasing **the** Risk of **Poisoning** in Elderly

- The risk of suicide by all means increases steadily with age.
- Elderly have reduced renal and hepatic functions which may lead to increased risk of toxicity with therapeutic dosages of drugs
- Use of multiple drugs for multiple problems which may lead to drug interaction
- Elderly may have several doctors prescribing similar/same medicines
- Self medication is common in the elderly
- Elderly may fail to understand the dosage
- Drug toxicity may he confused with the signs of aging
- Changes in drug receptors may produce exaggerated response to some drugs

3.3 MANAGEMENT OF POISONING

In the management of poisoning, tlierapeutic decision making must often precede specific knowledge of the poison based on liistory and examination. Five complementary steps required for the effective management of an acutely poisoned victim are:

I) Resuscitation and Initial Stabilization

2) Diagnosis of type of poison by history, examination and simple laboratory investigations

3) Non-specific therapy to reduce the levels of toxin in tlie body

4) Specific therapy to reduce the toxic effects on the body

5) Supportive care to support tlie functions of vital organs

3.3.1 Resuscitation and Initial Stabilization

The initial priorities in a patient with poisoning arc the maintenance of airway, breathing and circulation. If the patient is in altered level of sensorium, immobilize the cervical spine till a spinal injury can be ruled out. If respiratory inadequacy is present, intubate the patient. Hypotension in poisoned patients is most often due to loss of fluids or toxin-induced vasodilatation. Hence, crystalloids are the first choice of treatment of hypotension. However, before infusing fluids, withdraw blood for investigations including sugar, urea, electrolytes and acid-base status. Obtain rectal temperature in all patierits with altered sensorium.

After initial resuscitation, if tlie patient remains in altered level of sensorium, administer a 'cocktail' of 50 ml of 50% dextrose, naloxone and 100 mg of thiamine. If facilities are available, estimate blood sugar using a reliable bedside test and administer dextrose only if the blood sugar is below 80 mg/dl. However. if immediate estimation of blood sugar is not feasible, administer 50% dextrose to all patients with altered sensorium.

Naloxone is recommended in patients with altered mental status as it rapidly counteracts the sedation and respiratory depression induced by opiates. The dose is 2 mg in all age groups. In overdose with pentazocin or dextropropoxyphenc, doses as high as 10 mg may be required to reverse the CNS depression. If there is a suspicion that the patient may be an opioid addict and is not apnoeic, reduce the initial dose to 0.4 mg to avoid withdrawal features.

3.3.2 Diagnosis of Type of Toxin

Diagnosis is based on history, examination and simple laboratory tests.

History

It is important to elicit the history both from the patient as well as his relatives. Include the following information in the history:

a) what was the poison involved?

b) how much poison was taken?

c) when was it taken?

d) by what route was it taken?

e) why was it taken ?

f) what else was taken along with the poison?

g) what are tlie drugs/chemicals available at home?

h) what is the occupation o f tlie patient? This is important because poisoning can occur due to exposure to chemicals used at the occupation.

In a patient with altered level o f consciousness and where no proper history o f poisoning is available, try to exclude other causes o f altered sensorium. Important among these conditions include meningitis, encephalitis, subarachnoid hemorrhage, cerebrovascular accident, metabolic conditions (ketoacidosis, hypoglycemia, hyponatremia, etc.), uremia and hepatic failure.

Examination

Once the patient has been stabilized, perform a thorough head-to-toe examination to diagnose the type o f poison and to detect any associated trauma. Based on the examination findings, it may be possible to identify the type o f poison involved (Table 3.2).

Table 3.2: Clinical Features of **Associated Common Poisons**

Clinical Features	**Poisons**
Odour of Breath	Chloroform, Ethanol, Cyanide Arsenic, Organophosphates, Phosphorus, Kerosene
Hypertension with tachycardia	Amphetamines, Cocaine, LSD, MAO inhibitors, Marijuana, Alcohol withdrawal. Nicotine. Antihistamines, Antipsychotic agents. Antidepressants
Hypotension with bradycardia	Antidepressants (scvcrc cases). Barbiturates, Narcotics Benzodiazepines, Cyanide, Nicotine. Organophosphates
Hypotension with tachycardia	Aluminium phosphide, Antipsychotics, Caffeine, Cyanide, Disulfiram-ethanol interaction. Tricyclic antidepressants
Hyperthermia	Amphetamines, Antidepressants, Cocaine, LSD. MAO inhibitor, Anticholinergic agents, Salicylates, Antihistamines
Hypothermia	Antidepressants, Ethanol, Benzodiazepine, Narcotics, Barbiturates, Phenothiazines
Tachypnea	Amphetamines, Atropine. Cocaine, Salicylates, Acidosis
Bradypnea	Antidepressants, Antipsychotics. Barbiturates. Ethanol, Benzodiazepines, Narcotics, Organophosphates, Cobra bites
Altered sensorium	Antidepressants, Antihistamines, Antipsychotics, Atropine, Organophosphates, Barbiturates, Lithium, Cyanide, Benzodiazepines, Ethanol, Narcotics, Carbon monoxide
Seizures	Amoxapine, Maprotiline, Antipsychotics, Antihistamines, Chlorinated hydrocarbon, Oganophosphate, Lead and other heavy metals, Lithium, Narcotics. Amphetamines, Cocaine
Miosis	Barbiturates, Phenothiazines. Ethanol, Nnscotics, Nicotine, Organophosphates
Mydriasis	Amphetamines. Caffeine, Cocaine, LSD, MAO inhibitors, Nicotine, Antidepressants, Antihistamines, Atropine
Cyanosis	Methaemoglobinaemia, Terminal stages of all poisonings

Laboratory Investigations

Some simple bedside tests are helpful in diagnosing tlie chemical ingested. A pinkish colour of urine occurs in phenothiazine intoxication, as well as in myoglobinuria and hemoglobinuria. Chocolate-coloured blood is indicative o f methemoglobinemia. On microscopic examination o f urine, presence o f oxalate crystals is typical o f ethylene glycol ingestion. Ketonuria without any metabolic change occurs in isopropyl alcohol and acetone intoxication while ketonuria with metabolic acidosis is suggestive o f salicylates poisoning.

Abdominal x-rays may be useful in diagnosing certain radiopaque toxins which include chloral hydrate, heavy metals, iron, iodides, phenothiazines, sustained-release preparations and solvents (chloroform, carbon tetrachloride). However., never exclude a poisoning on the basis o f absence o f radiopaque density on x-ray.

3.3.3 Nun-specific Treatment

The next step in the management o f a poisoned patient is to remove tlie unabsorbed poison from tlie gut and increase the excretion o f absorbed poison from tlie body.

Gastric Decontamination

Removal of unabsorbed poison from the gut can be achieved by several means including induction of emesis. gastric lavage, and use of activated charcoal and cathartics.

Before performing a procedure for gastric emptying. it is important to consider (i) whether the ingestion is potentially dangerous, (ii) can tlie procedure remove a significant amount of toxin, and (iii) whether the benefits of a procedure outweigh its risks. If the patient has ingested a non-toxic agent, non-toxic dose of a toxic agent, or if he is free of symptoms despite passage of time during which tlie toxin is known to produce features of toxicity. gastric emptying is unnecessary. However, if tlie patient has ingested a high-risk toxin (cyanide, paracetamol), gastric emptying is indicated even if he is asymptomatic. Gastric emptying is also not indicated if tlie patient had prior repeated vomiting or the toxin is absorbed rapidly, or patient presents late after ingestion. However, some toxins (antidepressants, phenotliiazines. salicylates, opioids, phenobarbital and anticholinergics) delay gastric emptying. Gastric emptying is also delayed in comatose patients. It is also delayed if the toxin forms a mass in the stomach. In these situations, a delayed gastric emptying may be performed though there is no evidence to support this. If tlie risks of a procedure outweigh the possible benefits, it should be avoided (e.g., ingestion of volatile hydrocarbons, caustics).

Methods of Gastric Decontamination

The commonly methods of gastric decontamination are listed below:

I) Gastric Lavage

Insert a large-bore (32-40 F) orogastric tube with tlie patient in left lateral position and the head-end lowered. If gastric lavage is required in an unconscious patient, insert an endotracheal tube before lavage tube insertion in order to protect against aspiration into the lungs. Check the position of tube by injecting air through the tube into stomach and simultaneously auscultating over the epigastrium. After that, instill fluid in aliquots of 200-250 ml and drain it by gravity. Tap water at room temperature is sufficient in most cases. Continue lavage till tlie return is clear. Never perform a lavage following ingestion of strong caustics, lion-toxic agents and volatile hydrocarbons.

It is recommended that gastric lavage should not be considered unless the patient has ingested a potentially life-threatening amount of poison and the lavage can be undertaken within 60 minutes of ingestion. However, due to non-availability ofactivated charcoal in India, it may still be considered within 2 hours of ingestion of potentially toxic agents. Beyond 2 hours of ingestion, the decision to perform lavage is based on individual cases.

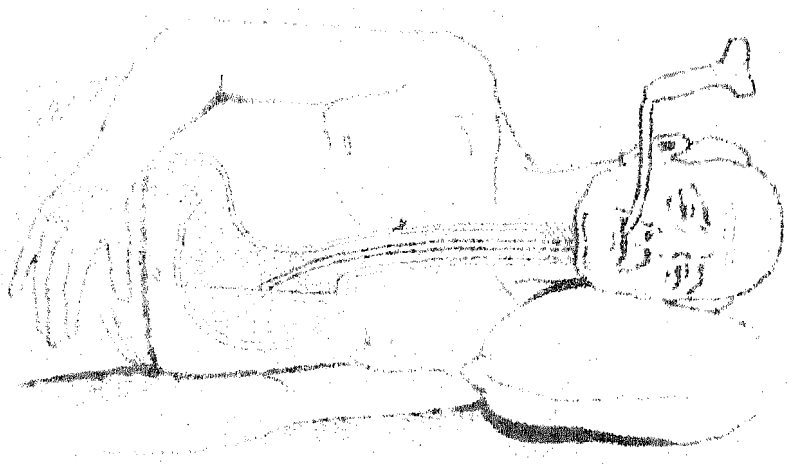

Fig. 3.1: Gastric Lavage

2) Cathartics

Cathartics have been used for several years with the hope of increasing the excretion of the toxins from the gut. Commonly used catliartics are: magnesium sulphate (30 g), magnesium citrate (300 ml) and sorbitol (60 g as 70% solution). Do not use sodium phosphate, oil-based cathartics or repeated doses of cathartics. Important complications of catharsis include electrolyte imbalance, dehydration, and in case of sorbitol, distension ofabdomen. Cathartics are contraindicated in presence of paralytic ileus, intestinal obstruction, renal Failure, hypotension, severe diarrhea and abdominal trauma.

Despite theoretical benefits of cathartics, there is no data to support their efficacy and their use cannot presently be recommended.

3) Forced Alkaline Diuresis

One of the commonly used methods to increase tlie elimination of a toxin is forced diuresis with alteration in urine pH. The renal tubular epithelium is relatively impermeable to the ionized molecules. If the urinary pH is changed so as to produce more of ionized form of a chemical, it is trapped in tlie tubular tluid and is excreted in the urine. This is the basis for alkaline diuresis which is useful in salicylates, phenobarbital arid lithium intoxication.

I-low to achieve alkaline diuresis? For this, administer 5% clextrose in half normal saline containing 20-35 mEq/L of bicarbonate at a rate so as to produce a urine output of3-6 ml/kg/hour and a urine pH 7.5-8.5. Furosemide may be needed to maintain high urine flows. Add potassium in every second or third bottle to prevent hypokalcmia. It is important to monitor tlie patient closely during forced alkaline diuresis. Monitoring parameters include tlie vitals of the patient, input/output, electrolytes arid acid-base status. Never use this procedure in patients with shock, hypotension, renal failure and congestive heart failure.

4) Multiple Doses of Activated Charcoal

Multiple doses of activated charcoal arc useful in certain poisoning. Because of multiple doses, free charcoal is available in the intestines to bind any toxin which has significant enterohepatic circulation i.e., which is excreted in tlie bile into the intestines and is reabsorbed. Further, free toxin in tlie blood tends to diffuse out of tlie blood into the intestines where it binds the cliarcoal, thereby maintaining tlie concentration of free toxin in tlie intestines near zero. Depending upon the severity of poisoning, tlie doses are: 0.5-1 g/kg body weight every 1-4 hours.

Multiple doses of charcoal are indicated in following conditions: (a) toxins with a long half life, (b) toxins with significant enteroliepaticcirculation like digoxin, phenobarbital and theopliylline, (c) there is a continuous release of toxin from a sustained-release preparation or froni a toxin-mass in the gut, and (d) ingestion is too massive to bc effectively adsorbed by a single dose of charcoal.

5) Dialysis

Peritoneal and hemodialysis are useful for water-soluble compounds of low molecular weight. Dialysis is useful in ethanol, methanol, salicylates, theopliylline, ethyleneglycol, phenobarbital and lithium intoxications. Peritoneal dialysis is a slow process and is only 10-25% as effective as hemodialysis.

Syrup of ipecac and activated charcoal are also useful agents for gastric decontamination. However, they are not available in India.

3.3.4 Specific Therapy

If the toxin is identified, administer the antidote if available. However, never waste time in searching for an antidote. Important antidotes available in India along with their usage have been listed in Table 3.3.

3.3.5 Supportive Therapy

Since antidotes are available only for a few toxins, treatment of most cases of poisoning is largely supportive. As we said earlier, you should not waste your precious time in locating an antidote; instead institute supportive therapy and then make an attempt to get the antidote. The aim of tlie supportive treatment is to preserve the vital organ functions till poison is

Table 3.3: Antidotes and their Use

Antidote	Poison	Administration
Atropine	Cholinesterase inhibitors	Adminsiter 2-4 mg initially: Repeat it every 5-15 minutes until there is cessation of oral and tracheal secretions. Then lower the dose and give at less frequent intervals to maintain atropinization for 48-72 hrs.
Pralidoxime	Organophosphates	1-2 gm IV over 10-20 minutes. Repeated every 4-8 hours.
Naloxone	Opiates	See under 'Resuscitation' 1-2 mg/kg as a 1% solution to be given slowly over 5 minutes IV. May be repeated after 1 hour.
Methylene blue	Methaemoglobinemia	
Ethanol	Methanol, Ethylene glycol	Loading dose is 0.75 g/kg which is followed by maintenance dose of 0.1 g/kg/hr.
Deferoxamine	Iron	90 mg/kg (upto 1 gm) IM followed by same dose every 4-12 hours. If hypotension is present. give IV at a rate not more than 15 mg/kg/hour.
Snake antivenin	Snake bites	Dose varies with the species of snake bitten and the severity of envenomation.
BAL (Dimercaprol)	Lead. Arsenic. Mercury	300 mg/sq. meter/day in 6 divided doses (3-5 mg/kg every 4 hours) for 2 days. then 2.5-3 mg/kg every 6 hours for 2 more deys. and then every 12 hours for 7 more days.

eliminated from the body and tlie patient resumes normal physiological functions. Therefore. provide care for comatose patient, seizures, hypotension, arrhythmias, hypoxia, and acute renal failure. Also monitor the fluid, electrolyte and acid-base status closely.

3.3.6 Legal Responsibilities

A patient with poisoning can be treated by any physician without any fear of legal implications provided he follows set rules which are: (a) collect tlie first sample of gastric lavage (if performed) and other relevant body fluids like urine and blood in clean bottles, (b) seal tlie bottles using a glue paper, (c) write the details about the patient on the seal. (d) affix signatures on the label, (e) record all the relevant information and observations about the patient carefully, and (f) inform the police after initial management.

Check Your Progress I

1) What do the ABC's refer to in the initial stabilization?

.....

.....

2) What is the pre-requisite of performing a lavage in an unconscious patient?

.....

.....

3) Name the contradictions for the use of gastric lavage.

.....

.....

4) Name the antidotes for poisoning with:

a) Iron: .....

b) Organophosphate Insecticides: .....

c) Methnaol: .....

3.4 ACCIDENTS IN ELDERLY

The process of aging makes the individual vulnerable to its surroundings by virtue offollowing bodily changes:

a) Reduced daylight visual acuity, reduced night vision

b) Reduced hearing

c) Chronic medical conditions that alter attention and consciousness

d) Alteration in judgement due to senile changes in brain

e) Reduced agility to avoid accidents due to severe arthritis, chronic lung and heart diseases and reduced muscle mass

9 Longer reaction time

g) Reduced peripheral vision

3.4.1 Pathophysiology of Elderly Traumatized Patient

Let us learn about the changes that happen in the elderly during accidents.

Cardiovascular Status

Vital signs can remain normal early in the course despite presence of significant loss of blood. Significant reductions in tlie coronary artery blood flow are common in geriatric patients even in the absence of significant atherosclerosis which leads to limited physiologic reserve. The elderly heart shows exaggerated response to cold, acidosis and hypoxia. Aging myocardium becomes less responsive to circulating catecholamines because ofbeta-receptor insensitivity. In stress, catecholamines are less likely to produce an increase in heart rate, and thus tachycardia may not be present. In addition, elderly patients have a greater likelihood of taking medications that can limit the maximal heart rate. Because of tliese factors, changes in vital signs may not be very helpful in tlie elderly. Once these patients develop hypotension, it may indicate terminal stages of injury.

Blood pressure readings can also be misleading. A blood pressure that would be considered normal in young should be looked at witli suspicion in the elderly. who is much more likely to have baseline hypertension. Since tlie elderly patient is unable to maximize cardiac output in tlie presence of blood loss, lie attempts to compensate this by increasing systemic vascular resistance in the early postinjury period, The net result of this increase in resistance is to worsen tlie cardiac output despite maintaining a 'normal' blood pressure. Thus it is important to suspect an internal injury if the patient has a normal blood pressure. The dilemma is that elderly trauma patients are intolerant of shock for even a brief period, yet routine clinical parameters are unreliable. Due to tliese reasons, invasive monitoring is frequently required in elderly patients.

When treating elderly patients with intravenous fluids, concerns about volume overload are greater than in the younger patients. Ringer's lactate may be better than normal saline as witli aging there is a decline in renal function and administration of normal saline can produce hyperchloremic acidosis.

Osteoporosis

Osteoporosis is a significant factor in tlie occurrence and severity of fractures secondary to trauma and contribute to the morbidity and mortality associated witli injuries.

Pulmonary Status

Aging has been associated witli reduced vital capacity and progressive reduction in arterial oxygen tension. In old age, reduced level of consciousness, dysphagia and disruption of the lower esophageal sphincter may increase the chances of aspiration. All these factors are important in outconie of elderly patient with trauma.

Infections

The immune system of an elderly does not function as efficiently as tliat in younger adults. This predisposes tlie elderly to infections.

3.4.2 Initial Approach to an Elderly Patient with Trauma

The approach is similar to that applicable to any other patient with trauma. Nevertheless, never forget the unique pathophysiology of the elderly during the entire management. It is important to assume that the worst possible injury has occurred and behave accordingly until the diagnosis is confirmed or ruled out. Often, treatment is started before confirmation of clinical diagnosis. Remember that presence of one injury does not guarantee that a second or even a third injury does not exist.

The initial assessment and management of a trauma patient can be carried out in three phases:

I) Primary survey including resuscitation

2) Secondary survey

3) Definitive management

I) Primary Survey

This is the initial brief survey to assess the condition of the patient and establish priorities in resuscitation and management. The aim of this survey is to identify and manage the most immediately lethal injuries. It includes the ABCDE (airway, breathing, circulation, disability and exposure).

Airway: The first priority in any patient is to ensure an adequate airway, free of blood, vomitus and secretion. Remove any loose dental appliances as these are commonly found in older patients. Theairway can be achieved by jaw thrust, chin lift and finger sweep methods. Do you recall how to open the airway using these method? Before employing any of these methods, consider a possibility of underlying cervical spine fracture in every patient. Therefore, do not move the neck; instead immobilize the neck using a soft collar or keeping sandbags on either side of the neck. Similarly avoid using head tilt method to open the airway as it may produce further injury to the cervical spine. If you have any doubt as to the adequacy ofairway, or if the injuries have caused swelling of the nasopharynx areas, it is best to intubate the trachea early.

Breathing: After obtaining an adequate airway, check for the adequacy of breathing. If inadequate, intubate either through endotracheal or nasotracheal route. What precaution will you take before intubating the patient? Remember what we said under the subhead of 'airway'; you have to keep the cervical spine stable while intubating the trachea. With the patient breathing spontaneously or by an Ambu's bag, examine the neck and chest to look for deviated trachea, crepitations, flail chest, sucking wound or absence of breath sounds on one side. Insert a large chest tube if hemothorax or pneumothorax is suspected.

Circulation: Feel the pulse and auscultate the heart to rule out cardiac arrest. If cardiac arrest is present, start cardiac compression (remember how to do cardiac compression?). Control exsanguinating external hemorrhage by compression. Insert two large bore needles into veins and collect blood for grouping and cross matching (if facilities are available at your place of work). If the patient is hypotensive, administercrystalloidspreferably Ringer's lactate rapidly. In presence of shock, you may have to administer as much as 1-1.5 litres over a period of 15-20 minutes, However, carefully monitor the patient for any signs of fluid overload by looking for elevated jugular venous pressure and appearance of crepitations at lung bases. If the patient initially improves but then deteriorates or fails to respond, blood products should be administered and emergent surgical intervention is often warranted. Transfusion of blood should be considered early in elderly trauma patients, because they often cannot increase their cardiac output to meet increased oxygen demands and depend on haemoglobin content for oxygen delivery to tissues. If the patient remains hypotensive with no evidence of continuing blood loss, rule out a possibility of cardiac tamponade which will manifest with elevated jugular venous pressure, muffled heart sounds and hypotension.

Disability: Perform an abbreviated neurological evaluation by looking for the level of consciousness, and pupillary size and reaction to light. This is important to rule out any imminent threat of cerebral herniation. More extensive evaluation is carried out during secondary survey. Any asymmetry in pupillary size may indicate an impending herniation and requires lowering of intracranial pressure. This can be done by intubating and hyperventilating the patient, and administering 100 ml of rmannitol intravenously.

Exposure: You must make it certain to remove all the clothing of the patient without any movement of neck. Remember, there is no place for modesty in managing trauma patients.

2) Secondary Survey

While resuscitation continues, proceed witli the secondary survey. It involves obtaining relevant history and a rapid but thorough physical examination for the purpose of identifying as many injuries as possible so as to set logical priorities for tlie definitive management of patient.

Perform the examination in a head-to-toe fashion. Beginning witli scalp, palpate for any deformity and check for any sites of blood loss. Control tlie bleeding with external pressure as scalp lacerations bleed profusely. Examine tympanic membranes to determine hemotympanum, and nose and ears for clear fluid (cerebrospinal fluid) leakage. Re-examine pupils for their size and reaction to light. Continue with examination of neck and chest. Be sure that tlie trachea is in midline. Check the carotid pulsations and look for jugular venous distension. Re-evaluate for any sucking chest wounds; palpate for subcutaneous emphysema, bony crepitus or deformities; and auscultate for breath sounds on both sides of chest and any muffling of heart sounds.

Inspect abdomen for any obvious injuries such as wounds, burns or impaled objects. Palpate for any tenderness, guarding, rigidity or organomegaly, and auscultate for bowel sounds. Remember that despite an underlying serious abdominal injury, the initial abdominal examination may be normal; therefore, examine the abdomen frequently to detect any abnormalities. Perform a rectal examination in all trauma patients to determine rectal tone, blood in rectum, and in males, impalpable prostate. Look for any blood at tlie urethral meatus or scrotal hematoma. Inspect tlie pelvis and extremities for any deformities and wounds. Compress the pelvis and apply pressure on symphysis pubis to detect any evidence of pelvic fracture. If the patient does not have any signs of urethral injury in the form of scrotal hematoma, blood at meatus and impalpable prostate during rectal examination, catheterize him for measuring urine output.

At this stage, carry out a detailed neurologic examination using Glasgow coma scale (Table 3.4). It is denoted by EMV (E - eye movements, M - motor response, V - verbal response) with each letter followed by its respective score. Check the extreniities for any focal deficits and any asymmetry of tendon reflexes.

Table 3.4: Glasgow Coma Scale

Parameter	Response	Score
Eye opening (E)	Opens spontaneously	4
	Opens to verbal commands	3
	Opens to pain	2
	No response	1
Motor response (M)	Obeys to verbal command	6
	Localizes painful stimuli	5
	Withdraws on pain	4
	Decortication (flexion) on pain	3
	Decerebrate (extension) on pain	2
	No response	1
Verbal response (V)	Oriented and converses	5
	Disoriented and converses	4
	Inappropriate words	3
	Incomprehensible sounds	2
	No response	1

A large portion of patient's body has not been examined at this stage, and that is back of the patient. For examining the back, carefully log-roll the patient to one side keeping tlie neck immobilized.

After secondary survey, get required series of x-rays for final diagnosis. Apply a splint to a fractured extremity so as to reduce the movements of fractured bone fragments.

3) Definitive Management

It depends upon the nature of injuries detected by primary and secondary surveys.

Check Your Progress 2

1) State whether correct or incorrect:
   a) A blood pressure of 110/70 mmHg in an elderly patient with trauma rules out a significant underlying injury.
   b) The best method to open the airway in trauma patient is the head tilt method.
   c) An initial normal abdominal examination does not indicate absence of an underlying abdominal injury.
   d) Minimum score possible in Glassgow coma scale is 0.
2) Fill in tlie blanks:
   a) The classic triad of cardiac tamponade is
   .....
   .....
   b) Leakage of clear fluid from nose indicates
   .....
   .....
   c) The signs of urethral injury in a male patient are
   .....
   .....
   d) In Glassgow coma scale, EMV stands for
   .....
   .....

3.5 LET US SUM UP

Acute poisoning is common in tlie elderly due to several factors including increased incidence of suicide, altered metabolism of toxins and use of multiple drugs. The first step in management is to resuscitate the patient. In patients with altered level ofconsciousness, administer naloxone, dextrose and thiamine. However, if bedside estimation of blood sugar does riot reveal hypoglycemia, avoid the use of dextrose. Before attempting a gastric emptying procedure, determine whether it is going to contribute significantly by reducing body burden of the poison and also its use is not contraindicated for the concerned toxin. Activated charcoal is useful within one hour of ingestion of poison but is not available. For most poisons, there is no role of forced diuresis by infusing large amount of intravenous fluids; this procedure in fact, may produce serious side effects. Antidotes are useful but are available only for a few poisons. The most important aspect of management is the supportive care of the patients.

Trauma in geriatric patient provides a special challenge for the physician because of tlie complex way in which these patients respond. The system of management consisting of primary survey (to look for injuries to high-priority areas) and secondary survey (a detailed examination to find out all the injuries) conducted in the first few minutes offers a proven method of Itandling the patients with trauma. Because of decreased cardiovascular and respiratory reserves and the inadequacy of standard vital signs to detect hemodynamic instability, procedures such as intubation and invasive monitoring are more likely to be required.

3.6 KEY WORDS

Cathartics : Method of induction of diarrhoea to promote excretion of the toxins from the gut.

Forced Alkaline Diuresis : Method to increasethe elimination of toxins by forced diruesis with alteration in urinary pH.

Gastric Lavage : Method to wash the stomach by plain water to remover remaining particles of poison.

3.7 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

1) Airways, Breathing and Circulation.
2) The patient must be intubated before performing a lavage in an unconscious patient.
3) The contradictions for use of gastric lavage are: Ingestion of strong caustics, non-toxic agents and volatile hydrocarbons
4) a) Deferoxamine
   b) Atropine and PAM
   c) Ethanol

Check Your Progress 2

1) a) lncorrect
   b) lncorrect
   c) Correct
   d) lncorrect
2) a) Hypotension, elevated jugular pressure and muffled heart sounds
   b) CSF rhinorrhea (CSF leakage)
   c) Scrotal hematoma, blood at urethral meatus, impalpable prostate
   d) Eye movements, motor response, verbal response

3.8 FURTHER READINGS

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