

Introduction

Though everyone agrees patient education is vitally important, it is often neglected in day-to-day practice. An investment in patient education is one of the most cost-effective ways of improving healthcare in India. Well-informed patients will take much better care of themselves - and information therapy will help to make medical care much more patient-centric.

Patient education is the process by which health professionals and others impart information to patients that will alter their health behaviors or improve their health status. Education providers may include physicians, registered dietitians, nurses, medical social workers, psychologists, general health assistants and pharmaceutical companies.

In this chapter, important chronic diseases namely diabetes, asthma, hypertension, arthritis, ischemic heart disease, obesity, cancer, epilepsy and dementia have been discussed. The chapter includes the causes, symptoms, management, prevention etc. of these diseases.

Objectives

After reading this chapter you will be able to:

- Know about causes, symptoms, prevention and control of common chronic diseases
- Provide patient education for these diseases

5.1 Diabetes

Diabetes is a disease in which the body doesn't produce enough insulin or properly utilize the insulin that is available. This results in excessive sugar in the blood. **Insulin** is a hormone that is secreted by pancreas. It is needed to convert sugar and starches into energy, which is needed in our body for daily activity.

Causes of Diabetes

The cause of diabetes is some defect in insulin production or its efficacy. It is usually due to genetic abnormality. Family history is present in many cases. Factors such as obesity and lack of exercise also play a role. Illness, infection and stress can also lead to diabetes.

Symptoms of Diabetes

The most common symptoms of diabetes are the following:

- ✓ Frequent urination
- ✓ Excessive thirst
- ✓ Extreme hunger
- ✓ Unusual weight loss
- ✓ Increased fatigue

Most of the symptoms are the body's way of trying to stabilize the blood glucose levels. The frequent urination is the body's attempt to rid the excess sugar (glucose). The extreme hunger is because the excess glucose in the body is floating in the blood stream instead of being utilized in the body's cells.

Types of Diabetes

There are two types of diabetes - type 1 and type 2.

Type 1 Diabetes is also called **Insulin Dependent Diabetes**. This is when the body is no longer producing insulin and artificial insulin must be administered through the form of an injection.



Fig: Diabetes need be diagnosed & treated early. Otherwise, it can lead to complications. Watch out for these symptoms!

Type 2 Diabetes is also called **Non Insulin Dependent Diabetes**. This is when the body is still producing insulin, but is not enough to meet the requirements needed to keep blood sugar (glucose) levels normal. In some cases, insulin is not able to send glucose into tissues from blood. Changing eating habits or losing body weight can be very therapeutic for returning blood glucose levels to normal.

Complications

The primary feature of this disorder is elevation in blood glucose levels (hyperglycemia). Sustained hyperglycemia affects almost all tissues in the body. **Complications of multiple organ systems** can occur including the eyes, nerves, kidneys, and blood vessels. Diabetes is one of the leading causes of blindness. Other complications of diabetes are kidney failure, heart disease, stroke, skin complications, and nerve damage.

Ignoring high blood sugar can be very dangerous. If not treated, high blood sugar can lead to coma and even death.

Diabetes Mellitus Management

Primary treatment goals for diabetes patients include the achieving of blood glucose levels that are close to normal. This can be achieved by regular exercise, diet control, giving insulin injections or drugs, which increase the efficacy of insulin that is produced in the body.

The treatment of low blood sugar consists of administering a quickly absorbed glucose source. These include glucose containing drinks, such as orange juice, soft drinks (not sugar-free), or glucose tablets in doses of 15-20 grams at a time (for example, the equivalent of half a glass of juice). If the individual becomes unconscious, glucagon can be given by intramuscular injection.

To treat diabetic retinopathy, a laser is used to destroy and prevent the recurrence of the development of small aneurysms and brittle blood vessels. Approximately 50% of patients with diabetes will develop some degree of



Fig: Foot ulcer in diabetic patient.

diabetic retinopathy after 10 years of diabetes, and 80% of diabetics have retinopathy after 15 years of the disease. Poor control of blood sugar and blood pressure further aggravates eye disease in diabetes.



The progression of nephropathy in patients can be significantly slowed by controlling high blood pressure, and by aggressively treating high blood sugar levels. Drugs used in treating high blood pressure may also benefit kidney.

The pain due to diabetic nerve damage may respond to traditional treatments with drugs. It may also improve with better blood sugar control, though unfortunately blood glucose control and the course of neuropathy do not always go hand in hand.

Complications of diabetes like ulcers on feet can be controlled by proper care of feet, including avoiding walking on barefoot and also by proper control of blood sugar levels.

Diabetic neuropathy can also affect nerves to the stomach and intestines, causing nausea, weight loss, diarrhoea, and other symptoms of gastroparesis (delayed emptying of food contents from the stomach into the intestines, due to ineffective contraction of the stomach muscles).

Advice to Diabetic Patient

- Avoid use of sugar.
- Take timely medicine/insulin, as advised.
- Do not miss meals.
- Take small frequent meals.
- Take preventive steps for avoiding complications.
- Watch for complications.
- Regular check up.
- Exercise.

Diabetes at a Glance

- Diabetes is a chronic condition associated with abnormally high levels of sugar (glucose) in the blood.
- Insulin produced by the pancreas lowers blood glucose.
- Absence or insufficient production of insulin causes diabetes.
- The two types of diabetes are referred to as type 1 (insulin dependent) and type 2 (non-insulin dependent).
- Symptoms of diabetes include increased urine output, thirst and hunger as well as fatigue.
- Diabetes is diagnosed by **blood sugar (glucose) testing**.

The major **complications of diabetes** are both acute and chronic.

- Acute Dangerously elevated blood sugar, abnormally low blood sugar due to diabetes medications.
- **Chronic** Disease of the blood vessels (both small and large), which can damage the eye, kidneys, nerves and heart.

Diabetes treatment depends on the type and severity of the diabetes.

- **Type 1 diabetes** is treated with insulin, exercise, and diabetic diet.
- **Type 2 diabetes** is first treated with weight reduction, diabetic diet, and exercise. When these measures fail to control the elevated blood sugars, oral medications are used. If oral medications are still insufficient, insulin medications are considered.

5.2 Asthma

Asthma is the leading cause of chronic illness in children. It is a chronic disease that causes the airways (the tubes that carry air in and out of lungs) to become sore and swollen **[inflammation of airways]**. The airways become narrower by increased production of mucus, mucosal swelling and muscle contraction. When asthma symptoms become worse than usual, it is called an **asthma attack**.

Children have smaller airways than adults, which makes asthma especially serious for them. In between the attacks of breathlessness, children can be normal.



Fig: Diagram showing airway and lungs.





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Fig: Causes of Asthma Attacks.

Causes of Asthma Attacks

Many things can cause asthma. These include :

- Allergens mold, pollen, animals
- Irritants cigarette smoke, air pollution
- Weather cold air, changes in weather/temperature
- **Infections** flu, common cold.

Some of the causes and triggers of asthma attack are depicted in the figure.

How Asthma is Manifested?

Signs and symptoms we should look for include:

- ✓ Frequent coughing spells, which may occur during play or at night
- ✓ Rapid breathing and difficulty in breathing
- ✓ Complaint of chest tightness or chest "hurting"
- \checkmark Whistling sound (wheezing) when breathing in or breathing out.

Tests

Asthma is usually diagnosed by history and clinical examination. **Pulmonary function tests** (PFT) also called **Lung Function Tests (LFT**) measure the amount of air in the lungs and how fast it can be exhaled. The results of PFT/ LFT can help the doctor determine how severe the asthma is. Other tests include **allergy skin testing**, blood tests and X-rays.

Conditions that Worsen Asthma

- Cigarette smoking
- Allergens dust, pollens
- Air pollution
- Certain medicines e.g. Aspirin

Treatment

Asthma is treated with two kinds of medicines: **quick-relief medicines** to stop asthma symptoms and **long-term control medicines** to prevent symptoms. Asthma medications are given as **inhalers** or through nebulizer (also known as a breathing machine). A **nebulizer** delivers asthma medications, usually bronchodilators, by changing them from a liquid to a mist. A child gets the medicine by breathing it in **through a facemask**. Precautions may be necessary to avoid inhalation of cold air. A heavy scarf, worn loosely over the nose and mouth, will help avoid cold air-induced asthma.



Advice to Patients of Asthma

- Adopt a healthy life style.
- Prevent exposure to severe cold weather.
- Use steam inhalation.
- Take adequate rest; avoid sternous work.
- Take treatment as advised.
- Use oxygen when necessary.
- Stop smoking.
- Protect yourself from allergens; (like pollens, animals).
- Prevent infections like flu, common cold.
- Avoid exposure to smoke and dust.
- Take well balanced diet.
- Regular exercise.
- Avoid obesity.

Remember: Asthma is...

- An inflammatory condition of the airways that is caused by allergens, irritants and respiratory infections.
- Is reversible and controllable.

5.3 Hypertension

Hypertension is the term used to describe high blood pressure. Blood pressure readings are measured in **millimeters of mercury** (mm Hg). It is usually given as two numbers. For example, 120 over 80 (written as 120/80 mm Hg). Blood pressure measurements are the result of the force of the blood pumped by the heart and the size and condition of the arteries. In hypertension, either or both of these numbers may be too high.

The top number is the **systolic pressure**, the pressure created when one's heart pumps blood. It is considered high, if it is consistently over 140 mm Hg. The bottom number is the **diastolic pressure**, the pressure inside blood vessels when the heart receives blood, before pumping out. It is considered high if it is consistently over 90 mm Hg. So if the systolic BP \geq 140 mm Hg or diastolic BP \geq 90 mm Hg, it is hypertension.



Fig: Taking asthma medicine through an inhaler.

Pre-hypertension is when the systolic blood pressure is between 120 and 139 or the diastolic blood pressure is between 80 and 89 (on multiple readings). If a person has pre-hypertension, he is more likely to develop high blood pressure.

Causes of Hypertension

Kidney diseases or diseases of blood vessels can cause hypertension. Abnormal production of certain **hormones**, like adrenaline, steroid hormones can produce hypertension. In most people, no cause is identified, in which case, it is called **essential hypertension**.

High blood pressure can affect all types of people. The person has a higher risk of high blood pressure if there is a family history of the disease. Smoking, obesity, and diabetes are all **risk factors for hypertension**.

Symptoms of Hypertension

Most of the time, there are no symptoms. Chest pain, palpitations, nose bleed, decreased vision and headache may occur. Dangerously high blood pressure (called **malignant hypertension**) manifests as **severe headache** and altered sensorium.

Tests

Blood pressure is measured by an instrument, called **sphygmomanometer**. Tests like ECG and X-ray chest are done to assess heart enlargement. Other tests may be done to look for changes in kidney, eyes or other organs due to hypertension. Hormones may be assessed to find the cause of hypertension.

Treatment

The goal of treatment is to reduce blood pressure so that the patient has a lower risk of complications. Diuretics, which increase urine output, along with increased sodium excretion will be useful. Regular exercise, decreased intake of salt, relaxation techniques (like meditation) and reduction of body weight (if the person is obese) are useful in reducing high blood pressure.

Prevention

Adults over the age of 18 should have their **blood pressure checked periodically. Lifestyle changes** may help control the blood pressure. Lose weight if overweight. Excess body weight adds to the strain on the heart. In some cases, **weight loss may be the only treatment needed**. Exercise regularly. Eat a diet rich in fruits and vegetables. Reduce fried and highly oily foods. Avoid chewing tobacco. Tobacco increases BP and spoils arteries. Avoid alcohol. If diabetic, **keep the blood sugar** under control.



Complications of Uncontrolled Hypertension

- Heart disease
- Kidney damage
- Vision loss
- Paralysis
- Heart attack
- Death

5.4 Arthritis

Arthritis is a group of conditions involving damage to the joints of the body. In arthritis, the joints become inflamed. Arthritis is a term that actually describes over 100 different types of conditions. They affect the joints, tendons, ligaments, muscles, and cartilage. Some of these conditions can also affect the important organs of the body (heart is affected in rheumatic arthritis).



Fig: Deformity due to Arthritis.

Types of Arthritis

Arthritis is one of the most common chronic conditions in the world. Some of the most common types of arthritis are:

- **Osteoarthritis** This occurs when the joints break down due to wear and tear. It occurs more in older people.
- **Rheumatoid Arthritis** This is an **autoimmune disease** (the body attacks its own joints) causing pain, swelling and some disabling effects. This can affect the whole body and may cause damage to the eyes, heart and/or lungs.

- **Gout** This often produces a sudden and severe attack of joint pain and swelling. This type of arthritis is caused by **excess uric acid** in the blood. It often begins in the joint of the **big toe**, but can occur in any joint.
- **Ankylosing Spondylitis** This is arthritis of the spine that causes swelling, pain, stiffness and other complications.

Symptoms of Arthritis

Swelling and pain in joints, limitation of the movement of the joints, stiffness, redness, tenderness and warmth over the joint are some of the common symptoms of arthritis. In rheumatic arthritis, fatigue, weight loss and other general symptoms can be present. Kidney problems can be found in rheumatoid arthritis.

Causes/Risk Factors

The causes and risks depend on the type of arthritis. Injury and age put a person more at risk for osteoarthritis. **Heredity** is also a major risk factor. Diseases like rheumatoid arthritis can affect children as well as adults. Osteoarthritis is more likely to affect an older person.



Tests/Diagnosis

A detailed medical history and examination of

Fig: Common sites of arthritis.

the joints help in the diagnosis for cause of arthritis. X-rays can show joint damage from osteoarthritis and chronic gout. The blood, urine and other tests can be used if arthritis affects the body systems. A **rheumatologist** is the specialist who is most qualified to diagnose type of arthritis and related disorders.

Treatment

Treatment depends on the type of arthritis. Physical therapy can be used to treat some forms of arthritis. The most common treatments include splinting the joint for support, **anti-inflammatory drugs** to lessen swelling, drugs to suppress the body's immune response (e.g. cortico-steroids), paraffin wax dips, cold packs and surgery.

Osteoarthritis may need hip and knee joint replacement surgery. Rheumatoid arthritis can be best treated by immune-suppressants that stop the body's attack on the joint fluid.

5.5 Ischemic Heart Disease [IHD]

Ischemic heart disease (IHD), or **Myocardial Ischemia**, is a disease characterized by reduced blood supply to the heart muscle. This is usually due to narrowing of the coronary arteries, consequent to deposition of fat [**Coronary arteries** are the blood vessels which supply blood to the heart].

Causes of IHD

Fatty deposits (**atheroma**) accumulate in the cells lining the inner walls of the coronary arteries. These fatty deposits build up gradually and irregularly in the large branches of the **two main coronary arteries** which encircle the heart and are the main source of its blood supply. This process is called **atherosclerosis**. This leads to narrowing and hardening of the blood vessels supplying blood to the heart muscle. This results in ischemia (inability to provide adequate oxygen) to heart muscle and this can cause damage to the heart muscle. Complete occlusion of the blood vessel leads to a heart attack (myocardial infarction).

Its risk increases with advancing age, smoking, high blood cholesterol levels, diabetes and hypertension. It is more common in men and in those who have close relatives with IHD.

Risk Factors for Ischemic Heart Disease

Everybody has some risk of developing **atheroma** [deposition of fatty substance in the artery's inner wall, leading to narrowing of blood vessel], which may cause IHD. However, certain **'risk factors'** increase the risk. These risk factors include:

- Lifestyle risk factors that can be prevented or changed:
 - Smoking
 - Lack of physical activity (a sedentary lifestyle)
 - Obesity
 - An unhealthy diet (e.g. junk food)
 - Excess alcohol
- **Treatable/partly treatable** risk factors:
 - Hypertension
 - Diabetes
 - Higher level of cholesterol in blood
 - High triglyceride (fat) level in blood
 - Kidney diseases that affect kidney function

Fixed risk factors that we cannot alter:

- Strong family history: This means if one has a father or brother who developed heart disease or a stroke before they were 55, or in a mother or sister before they were 65.
- Being male/a woman with an early menopause.
- Age: the older one is, the more likely to develop atheroma.
- Ethnic group: e.g. South Asians have an increased risk of IHD.

Features of IHD

- **Angina pectoris** (chest pain on exertion, in cold weather or in emotional situations),
- Acute chest pain: acute coronary syndrome, unstable angina or myocardial infarction ("heart attack" i.e. severe chest pain unrelieved by rest associated with evidence of acute heart damage),
- **Heart failure** (difficulty in breathing or swelling of the extremities due to weakness of the heart muscle).

Management

Diagnosis of IHD is done with an electrocardiogram, blood tests (cardiac markers), **cardiac stress testing** or coronary angiogram.

Depending on the symptoms and risk, treatment may be with medication, per-cutaneous coronary intervention (**angioplasty**) or **coronary artery bypass surgery/graft** (CABG). Management of risk factors like hypertension and diabetes are essential. Graduated exercise and periodic check up are advised.

Control these Risks, if IHD is to be Prevented

Control of risk factors like obesity, hypertension and diabetes helps in prevention of IHD. Avoidance of tobacco and alcohol intake is an important preventive measure. Let us see why these need to be avoided:-

Smoking tobacco: It constricts the blood vessels. That makes heart work harder, to keep the blood flowing throughout the body. It also puts a number of toxins into our blood. It sends carbon monoxide into blood, which obstructs other organs from getting oxygen. Tobacco makes heart beat faster and also damages the inner walls of arteries.

Stress: It strikes persons with a certain kind of personality. Such people susceptible to stress are up to four times more prone to CHD.



Lack of regular exercise: Absence of walking, jogging or running in our daily life increases our chances of getting heart disease. Lack of exercise raises blood pressure, increases body weight and lowers good cholesterol.

Obesity: Excess body weight (obesity) leads to high blood pressure, high cholesterol, diabetes and finally IHD.

Diabetes: It causes increased fat deposition in blood vessels, leading to their narrowing.

High Blood Pressure: Known as a **silent killer**. High blood pressure has no symptoms. So, people fail to pay attention, till the problem gets serious. High BP creates pressure against arteries and damages them (especially the arteries present in kidneys, heart, eyes, brain, etc.).

Cholesterol: It is a waxy substance found in blood stream. Accumulation of this on the walls of the arteries restricts the normal flow of blood and oxygen to heart. Without enough oxygen, as well as blood, heart gets damaged.

5.6 Obesity

Obesity is a medical condition in which **excess body fat** has accumulated to the extent that it may have an adverse effect on health, leading to **reduced life expectancy**.

Body mass index (BMI) compares weight and height. It is used to define a person as overweight (pre-obese) when their BMI is between 25 kg/m² and 30 kg/m² and obese when it is greater than 30 kg/m^2 . BMI is defined as body weight in Kg divided by height in meters².

To **calculate your Body Mass Index** (BMI), take your weight (in kilograms) and divide by your height (in meters) squared. BMI= Weight in Kg/ (height in meters)²

A BMI between 19 and 25 is normal. Less than 19 is underweight. **BMI between 25 and 30 is overweight**. BMI greater than 30 is obese. BMI above 40 is considered **moribund obesity** and it means that the person is prone to various cardiovascular disorders.

BMI Categories:

- Underweight BMI <19 Kg/m²
- Normal weight BMI = 19 25 Kg/m²
- Overweight BMI >25- 30 Kg/m²
- Obesity BMI of greater than 30 Kg/m²



Fig: Obesity: We should take control of obesity seriously. It leads to health problems, social problems and also occupational problems.

Causes of Obesity and Consequences

Obesity is most commonly caused by a combination of excessive dietary intake of calories and lack of physical activity. A limited number of cases are due to genetic susceptibility, medical problems or psychiatric illness. **Obesity leads to many diseases**, particularly heart disease, diabetes, breathing difficulties during sleep and arthritis.

Symptoms

The main feature is increased body weight, due to fat deposition. Patients with obesity can have high blood pressure, diabetes, breathing disorders and complications of them.

Treatment

The primary treatment for obesity is **dieting and physical exercise**. If this fails, **anti-obesity drugs** may be taken to reduce appetite or inhibit fat absorption. In severe cases, surgery (**bariatric surgery**) is performed to reduce the stomach volume and length of small intestine. Such surgery leads to earlier satiation of hunger and reduced ability to absorb nutrients from food. Obesity may be prevented by intake of proper diet, regular exercise and avoiding excess carbohydrates/spicy food/ junk food.

Health Education to Prevent Obesity

- Reduce consumption of oily foods and sweets.
- Consume more fruit and vegetables.
- Increase physical exercise.
- Avoid junk foods.
- Use bicycle as much as you can.
- Go for swimming.

5.7 Cancer

Cancer is a term used for diseases in which abnormal cells divide without control. Such cells are capable of invading other tissues. **Cancer cells can spread to other parts of the body**, through the blood circulation and lymph circulation.

The leading sites of cancer among men are cancer of oral cavity, lungs, oesophagus and stomach. Leading sites among women are cervix of the uterus, breast and oral cavity. **Oral and lung cancers in males**; and **cervical and breast cancers in females** account for more than 50% of all cancer deaths in India.

Types of Cancer

Cancer is not just one disease but many diseases. There are more than 100 different types of cancer. Most cancers are **named after the organ or type of cell** in which they start. For example, cancer that begins in the colon is called colon cancer; cancer that begins in basal cells of the skin is called basal cell carcinoma.

Cancer types can be grouped into broader categories. The main categories of cancer include:

- **Carcinoma** cancer that begins in the skin or in tissues that line or cover internal organs.
- **Sarcoma** cancer that begins in bone, cartilage, fat, muscle, blood vessels, or other connective or supportive tissue.
- **Leukemia** cancer that starts in blood-forming tissue such as the bone marrow and causes large numbers of abnormal blood cells to be produced which enter the blood.
- Lymphoma and myeloma cancers that begin in the cells of the immune system.
- **Central nervous system cancers** cancers that begin in the tissues of the brain and spinal cord.

Origins of Cancer

All cancers begin in cells, the body's basic unit of life. To understand cancer, it's helpful to know what happens when normal cells become cancer cells.

The body is made up of many types of cells. These **cells grow and divide in a controlled** way to produce more cells, as they are needed to keep the body healthy. When cells become old or damaged, they die and are replaced with new cells.

However, sometimes this **orderly process goes wrong**. The genetic material (DNA) of a cell can become damaged or changed, producing **mutations** that affect normal cell growth and division. When this happens, **cells do not die when they should** and new cells form when the body does not need them. The extra cells may form a mass of tissue, called a **tumor**. Some cancers do not form tumors. For example, **leukemia** is a cancer of the bone marrow and blood.

Types of Tumor

Not all tumors are cancerous; tumors can be benign or malignant.

- **Benign tumors** aren't cancerous. They can often be removed, and, in most cases, they do not come back. Cells in benign tumors do not spread to other parts of the body.
- **Malignant tumors** are cancerous. Cells in these tumors can invade nearby tissues and spread to other parts of the body. The spread of cancer from one part of the body to another is called **metastasis**.

Risk factors for Cancer

- Unhealthy lifestyle
- Smoking
- Chewing of tobacco
- Alcohol
- Poor personal hygiene
- Air pollution

Danger Signs for Early Detection of Cancer

- Lump or hard area in breast
- Persistent cough or hoarseness of voice
- Bleeding from any of the orifices
- Unexplained weight loss
- Swelling or sore that does not heal
- Any wound that does not heal
- Change in bowel habits
- Change in wart or mole



Important Measures for Preventing Cancers

- Avoid smoking.
- Avoid chewing of tobacco.
- Prevent ulcers and infections in the mouth.
- Maintain oral hygiene.
- Periodic screening, check up.
- Eat healthy diet.
- Avoid alcohol.
- Practice healthy lifestyle.
- Regular exercise.

Treatment

- Radiotherapy
- Surgery
- Chemotherapy

5.8 Epilepsy

Epilepsy is defined as recurrent episodes of **abnormally increased electrical activity of the brain**, which manifests as transient episodes of **seizures** (brief episodes of altered consciousness). It is a very common neurological disorder. About 50 million people worldwide are suffering from it. It can manifest as **recurrent**, **abnormal**, **jerky movements of body**, which usually last for a few minutes. Some patients lose consciousness during these episodes. Each episode is called '**seizure**'. Occurrence of two or more seizures is termed as **epilepsy**. With proper medications, one can successfully control it in most of the cases.

Epilepsy is of different types. Not every type lasts life-long. Some types are confined only to some stages of childhood. The **classification of epilepsy** is done on the basis of their cause, observable manifestations of seizures, location in brain where the seizures originate, identifiable medical syndromes and the triggers that result in the seizure.

Epilepsy Symptoms

The most common symptom of epilepsy is recurrent seizures. There are many types of seizures, but most broadly classified are:-

- **Generalized tonic-clonic seizures (GTCS) (**or **grand mal)**, where a person loses consciousness, falls down, stiffens body and starts jerking uncontrollably.
- Generalized absence seizures (petit mal), where there is a brief loss of consciousness for a few seconds, but the person does not fall down. This type of seizures occurs in children.

Simple partial seizure, the person is fully aware and experiences abnormal twitching movements in body parts (like head, legs, arms, hands, eyes etc.). Might experience odd smells, sounds or tastes.

Causes of Epilepsy

The cause of epilepsy is usually not clear in a person. It is observed that, at times, epilepsy runs in the family. Epilepsy is not a mental illness, it's a **neurological disorder**. Epilepsy may develop after damage or injury to the brain,. Such damage may be caused by decreased blood or oxygen supply during birth or stroke, head injury, infection or brain tumor.

Lead poisoning and substance abuse too can lead to epilepsy. At times, maternal injury, infection or systematic illness affects the developing brain of the fetus during the pregnancy and might lead to epilepsy.

A seizure can also be caused by any of the provocants leading to the abnormal neurological activity. These provocants can be like hot water on head, hyperventilation, flashing or flickering lights (photosensitive epilepsy), and sleep deprivation.

Epilepsy Management

One can perform an **electro- encephalogram (EEG)**, brain MRI or CT scan, so as to check for epilepsy or to find the cause of epilepsy.



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Medications can be taken to reduce the attacks. Various drugs like carbamazepine, phenobarbital, phenytoin, sodium valproate can be taken in order to control the recurrence of epileptic seizures. Avoiding the triggers will help further in keeping a check on the seizures. In case of severe cases of epilepsy, brain surgery can be performed.

Epilepsy is not a contagious disease. Most people lead a normal life. They can marry and can have normal children.

During the attack, it is harmful to forcefully open mouth to keep something. Keeping keys in hand or making a person to smell shoes are useless in control of seizures. It is essential to avoid injury during convulsion. Turning the patient to one side in supine posture helps in preventing blocking of airway with throat secretions. It also helps in preventing vomit or secretions from entering into the lungs.

Epilepsy can be prevented by **proper care during childbirth**. It can also be prevented by **avoiding head injury** by careful driving and use of helmets.



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Partial seizures

5.9 Dementia

Dementia is defined as **progressive loss of memory** and other mental functions (like calculation, judgment etc.), thereby significantly affecting the person's daily activities.

Many acute diseases have specific causes (e.g. a virus causing measles infection). However, for many chronic disorders (long-lasting conditions such as **Alzheimer's disease**, the most common cause of dementia), the causes remain uncertain. We look for factors that appear to be linked to the development of a disease. These are **"risk factors"** – if they are present, there is an increased chance that the disease will develop. It is important to note that **risk factors are not necessarily causes of a disease**.

Risk factors for Dementia

- **Age** is the most important risk factor for dementia. As we grow in age, our body's self-repair abilities become less efficient.
- **ApoE gene**: Apart from the mutated genes responsible for dementia, the most important genetic risk factor for Alzheimer's disease is the apoE4 gene.
- **Other risk factors** for dementia: diabetes, high blood pressure, head injury, low levels of formal education.



Fig: Risk factors of Dementia.

Features of Dementia

The persons are usually of older age group, **forget the recent events** (like the recent news details or where they kept their money etc.). They tend to forget the way to their house from market or unable to count money. Remote events, like names of children or childhood events are lost in late stages. **Social behaviour** can be affected.

How to Confirm the Diagnosis?

Diagnosis of dementia is confirmed by careful assessment of mental functions and by imaging of brain (by CT or MRI scans). It is important to **exclude reversible causes of dementia** due to medical disorders, like hypothyroidism, Vitamin B12 deficiency and psychiatric disorders.

Reducing the Risk of Dementia

Living a healthy lifestyle may help reduce one's overall risk of developing Alzheimer's disease. A healthy lifestyle includes healthy eating, maintaining a healthy weight, taking part in regular physical activity, maintaining normal blood pressure and cholesterol levels and participating in activities that involve socializing and stimulating brain activity. Frequent intake of fruits and vegetables has shown to delay the onset of dementia.

Management

We should give due respect to patients of dementia by understanding their problems. Help them and their caregivers. **Patients may keep a dairy** to note things; otherwise they tend to forget. They should **carry their identity details** always in their pockets, so that they can be helped, if lost in market place. **Drugs have only minimal role** to play in the management of dementia (e.g. control of behavioral disorders).

Questions

- 1. Describe patient education.
- 2. Mention the symptoms of diabetes.
- 3. State four complications of diabetes.
- 4. Explain what advice you would give to a patient of asthma.
- 5. Mention complications of uncontrolled hypertension.
- 6. Explain what health education you would give to Arjun, an 18 year old school boy to prevent obesity.
- 7. Name two common cancers among men in our country.
- 8. Mention four risk factors of dementia.