Introduction

A drug broadly speaking is any substance that, when absorbed into the body of a living organism, alters normal bodily function. (1)

Drugs plays vital role in the human life cycle for survival. We need these medicines which may be natural in origin or synthetically prepared to maintain our health in proper form. It is as important as the fundamental requirement for human beings i.e. Food, cloth and shelter. People face various ailments and diseases in life in different stages of life and needs medicines in order to cure them. Apart from using drugs, medical treatment also involves diagnosis, treatment and possible prevention to heal any disease.

Pollution, wrong food habits has become a major problem worldwide causing several types of diseases and disorders in human beings. Our modern lifestyle plays a very important role in boosting our health problems. Due to mental stress and strain people are suffering from different health problems like high B.P., diabetes, rheumatoid arthritis, nervous system and kidneys disease etc.

The strong demand for medicines due to ever increasing diseases has led various developments in the field of medical science. The most common medicines or drugs can be classified as,

- Antibiotics
- Analgesics and Antipyretics
- Antihistaminic agent
- Antimalarial agent
- Antihypertensive agents
- Antidiabetics
- Antacids etc.

Now a day, due to change in life style a new kind of disorder is taking place in human’s body. That is known as Diabetis Mellitus. Diabetes mellitus, often simply referred to as diabetes, is a group of metabolic diseases in which a person has high blood sugar, either because the body does not produce enough insulin, or because cells do not respond to the insulin that is produced. (2) This high
blood sugar produces the classical symptoms of polyuria (frequent urination), polydipsia (increased thirst) and polyphagia (increased hunger).

There are three main types of diabetes:

- **Type 1 diabetes:** Type 1 diabetes mellitus is characterized by loss of the insulin-producing beta cells of the islets of Langerhans in the pancreas leading to insulin deficiency. This type of diabetes can be further classified as immune-mediated or idiopathic. The majority of type 1 diabetes is of the immune-mediated nature, where beta cell loss is a T-cell mediated autoimmune attack. \(^{(2)}\)

- **Type 2 diabetes:** Type 2 diabetes mellitus is characterized by insulin resistance which may be combined with relatively reduced insulin secretion\(^{(3)}\). The defective responsiveness of body tissues to insulin is believed to involve the insulin receptor. However, the specific defects are not known. Diabetes mellitus due to a known defect are classified separately. Type 2 diabetes is the most common type.

- **Gestational diabetes:** Gestational diabetes mellitus (GDM) resembles type 2 diabetes in several respects, involving a combination of relatively inadequate insulin secretion and responsiveness. It occurs in about 2%–5% of all pregnancies and may improve or disappear after delivery. Gestational diabetes is fully treatable but requires careful medical supervision throughout the pregnancy. About 20%–50% of affected women develop type 2 diabetes later in life.

  There are various pharmacological classes of drug which can use in the treatment of diabetes mellitus. These classes are as follows:
  1. Biagunides
  2. Alpha-glucose inhibitors
  3. Insuline therapy
  4. Meglitinides
  5. Sulfonylureas
  6. Dipeptidyl peptidase-4 inhibitors
  7. Thiazolidinediones

  Due to continuously, increasing cases of diseases and disorders, now the researchers are facing more challenges to overcome these problems. The problem
can be overcome either by discovering a new drug or by formulating a possible combination. As the revenue required for the drug discovery is very huge, the pharmaceutical industries are trying to come up with a combination therapy. These possible combinations can proved to be very effective as well as cost effective too. The combination therapy involves use of two drugs, which are inert to each other but are having pharmacological action, which is more effective than single dose therapy.

In combination product, it is necessary that both the drug substances should be analyzed equivocally. The analytical method must quantify drug substances in the drug product with the other possible ingredients (i.e., Excipients, Binders, Disintegrants, polymers, colouring agents, etc). Also the method must be capable of distinguishing various other degradants, which may arise during the stability.

**Signs and Symptoms:**

The classical symptoms of diabetes are polyuria (frequent urination), polydipsia (increased thirst) and polyphagia (increased hunger).\(^4\) Symptoms may develop rapidly (weeks or months) in type 1 diabetes while in type 2 diabetes they usually develop much more slowly and may be subtle or absent.

Prolonged high blood glucose can cause glucose absorption in the lens of the eye, which leads to changes in its shape, resulting in vision changes.

Blurred vision is a common complaint leading to a diabetes diagnosis; Type 1 should always be suspected in cases of rapid vision change, whereas with Type 2 change is generally more gradual, but should still be suspected. A number of skin rashes can occur in diabetes that is collectively known as diabetic dermadromes.