

DIABETIC COMPLICATIONS

Hi everyone!

This is a new e-book we want to introduce to you regarding *DIABETIC COMPLICATIONS*. Nobody wants to be ill. Nobody wants to have complications either. Everyone wants to beat diabetes without side effects and without complications.

The first step toward curing is *LEARNING*. Getting the right knowledge about the possible diabetes complications will empower with the huge energy of fighting against diabetes.

Now, in this e-book we have provided the most possible complications related to **persistent high blood sugar levels** (*hyperglycemia*) and **low blood glucose levels** (*hypoglycemia*).

We have tried to give a short and simple description to all the possible complications and other problems related in the following two sections.

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Ketoacidosis (Diabetic Acidosis)

Definition: Diabetic ketoacidosis (DKA) involves the metabolic status of persistent hyperglycemia, acidosis and ketosis.

Signs & symptoms: has a gradual & fatal presentation with

- fatigue & malaise;
- abdominal pain;
- nausea or vomiting;
- signs of hyperglycemia (polydipsia = drinking too often; polyuria = urinating too often; polyphagia = eating too often);
- unexplained weight loss
- Fever.

In advanced stages patients are often presented with

- ❖ alteration in their mental status in lack of any head trauma;
- ❖ tachypnea/hyperventilation (increased frequency of

breathing = Kussmaul respirations);

- ❖ tachycardia (increased heart beating rate) with normal/low blood pressure;
- ❖ poor perfusion;
- ❖ being lethargic & weak with acetone breathing odor (sign of metabolic acidosis)

Type of diabetes affected: *Type 1* (especially pediatric diabetes)

Prevention:

- ✚ Adjusting the dose of insulin injections according to the patient's needs
- ✚ Being in close contact with the consultant doctor.

Hyperglycaemic Hyperosmotic Non Ketonic Syndrome (HHNKS)

Definition: It is state of hyperglycemia, hyperosmolarity, and dehydration *without* significant ketoacidosis.

Signs & Symptoms:

- ❖ Signs of severe hyperglycemia (increased thirst, hunger & urination frequency)
- ❖ Weight loss
- ❖ Being extremely weak
- ❖ No abdominal pain
- ❖ Neurological problems:
 - Hemiparesis (loss of sensitivity of half of the body) & other sensory deficits
 - Visual problems
 - State of drowsiness & lethargy
 - Sometimes delirium or even coma
 - Seizures (focal/generalized)

Type of diabetes affected: Mostly type 2 diabetics although it has been shown even in type 1 diabetics.

Prevention:

- ✚ Teaching diabetics on how to take a good glycemic control.
- ✚ Assisting diabetics in the days of being sick (different from diabetes, e.g. infection, stroke, trauma, etc.)

Diabetic Coma

Definition: A life-threatening health state developed due to treating diabetes incorrectly.

In other words, having extremely high or low blood glucose levels can lead to diabetic coma.

Signs & Symptoms:

Before entering a diabetic coma:

Signs of hyperglycemia:

- ❖ Polydypsia + polyuria
- ❖ Very dry mouth
- ❖ Fatigue
- ❖ Being short of breath + tachycardia (increased heartbeat)
- ❖ Stomach pain + nausea/vomiting
- ❖ Fruity-like smell odor

Signs of hypoglycemia:

- ❖ Feeling shaky or nervous or fatigued & irritated
- ❖ Being hungry
- ❖ Having nausea
- ❖ Irregular heart-beats

- ❖ Having difficulty in speaking
- ❖ Being confused.

Type of diabetes affected: Every type.

Prevention: As for any other diabetes complication, if you take *good control* of your blood glucose levels; you can prevent their onset.

- ✚ Always monitor your blood glucose levels. You can also use continuous glucose monitors which can detect the oscillations in your blood sugar, especially the extreme ones.
- ✚ Take medications as prescribed by your doctor. Keep in close contact with your health-care-giver, especially when you have other medical problems.
- ✚ Keep candies or other food sources of simple sugar in your pocket. They can rapidly increase blood sugar.
- ✚ Wearing a Diabetic bracelet or necklace can also help you.

Hair Loss

Definition: A complete or partial absence of hair in the head or other body parts due to diabetes.

Signs & Symptoms:

- ❖ Partial or complete baldness
- ❖ Partial or complete body hair loss

Type of diabetes affected: Each type.

Causes:

- Persistent high blood glucose levels causing:
 - Repeated & difficult to treat skin infections in the hairy area of the body.
 - Stress which can make your hair become thinner until losing it.
- Use of hypoglycemics (lowering blood sugar drugs)

Prevention:

- ✚ Keeping in good control your blood glucose levels
- ✚ Being always in close contact with your doctor to assist you in every problem you might have.

Diabetic Seizures

Definition: A diabetic seizure is due to sudden continuous contradictory electrical signals coming from your brain. In diabetics, the causes are persistent high blood sugar levels and profound hypoglycemia.

Signs & Symptoms:

- Being unaware of the surroundings although your eyes are open & look like conscious.
- Being dazed/confused
- Cannot respond to questions asked
- Non-noticeable seizures – rapid blinking/staring into wide space
- Violent convulsions/turning/twitching/stiffness of muscles
- Short loss of memory
- Involuntary movements and/or feeling numbness in many parts of your body even after recovering from the seizure.
- When seizures happen during night, while you are asleep; you might have morning

headaches and/or wet sheets due to night sweat & high blood glucose levels.

- Less common: chest pain; severe swinging moods.
- Smelling a strange odor
- Having panic attacks
- Seeing moving flashes of light.

Type of diabetes: Every type.

Prevention:

- ✚ Always monitor your blood glucose levels.
- ✚ Be in close contact with your doctor.
- ✚ Do not skip your meals.
- ✚ Take your medications correctly according to your doctor prescription.
- ✚ Take some diabetic identification objects (bracelet, necklace, etc) with you.
- ✚ Take extra meal or snacks when you feel shake and blood sugar drops.

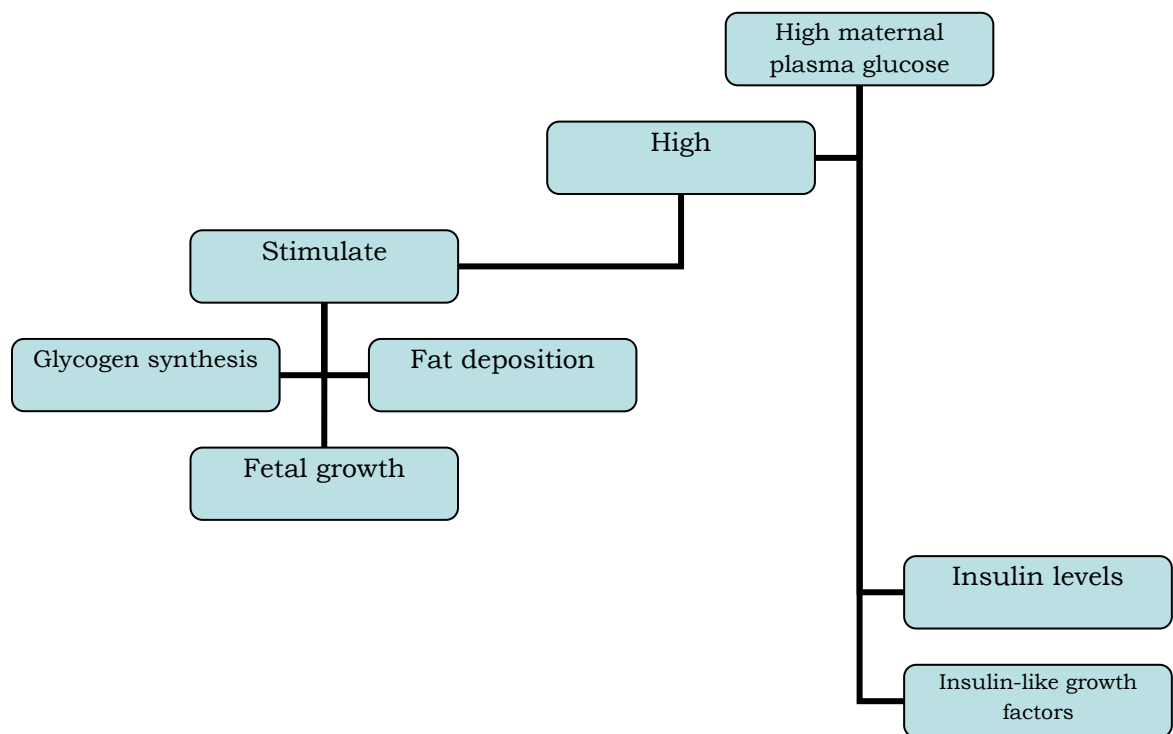
Macrosomia

Definition: A newborn baby with higher weight than the average.

Signs & Symptoms:

Baby with a weight higher than 4000 – 4500 grams in birth.

Causes: Uncontrolled gestational diabetes.



Type of diabetes: Gestational diabetes only.

Prevention:

- ✚ Keeping blood glucose under control.
- ✚ Closely monitor weight gain in pregnant women.

- ✚ Work with dietitian to prepare a daily menu according to pregnancy and diabetes needs.

Stillbirth, a dead newborn & jaundice problems

Stillbirth

Definition: Giving birth to a dead baby (i.e. the fetus has already died inside the uterus or during birth).

Signs & symptoms:

- Bleeding from vagina
- Your baby is kicking less.

Prevention:

- ✚ Monitoring blood sugar levels
- ✚ Monitoring baby kicking
- ✚ Be in close contact with the doctor when you notice vaginal bleeding or other problems.

A dead newborn

Definition: Number of deaths during the first 28 completed days of life per 1,000 live births in a given year or period (WHO).

Prevention:

- ❖ Monitoring blood sugar levels.
- ❖ Monitoring baby activity and vital signs.

Infant Jaundice Problems

Definition: It is a health condition when skin and/or eyes white are becoming yellow.

Signs & Symptoms:

Most common:

- Yellow skin and eyes white.
- Pale stool
- Itchy skin
- Difficulty in feeding
- Drowsiness
- Dark urine

Severe Jaundice:

- Persistent for more than 3 weeks.

Prevention:

- ✓ Make sure your baby feeds well getting the right nutrients.
- ✓ Close monitoring of your blood sugar levels and that of your baby.

Diabetic Neuropathy

Definition: They include damages to the nerves (neuropathy problems) caused by high blood sugar levels.

Signs & Symptoms: Depend on the body sites affected:

- Diabetic peripheral neuropathy
- Diabetic autonomic neuropathy
- Diabetic proximal neuropathy
- Diabetic focal neuropathy

Types of diabetes affected: Any type.

Prevention:

- ✚ Try to keep your blood sugar under control (i.e. as near to the normal ranges as you can)..
- ✚ Check your feet systematically.
- ✚ Conduct a healthy lifestyle.

Diabetic Nephropathy (damages to the kidneys)

Definition: Diabetic nephropathy involves damages to the kidneys due to uncontrolled and/or persistent high blood sugar levels.

Signs & Symptoms:

Early signs – Not seen

Advanced stages:

- Proteinuria accompanied with swelling/edema
- Tiredness/fatigue
- Weight loss
- Gastrointestinal problems (nausea/vomiting/poor appetite)
- Sleeping problems

In general, a proteinuria higher than 300 mg/day observed twice in 3-6 months + a progressive decrease of glomerular filtration rate (GFR) + high blood pressure; indicate that diabetic nephropathy is undergoing.

Type of diabetes affected:

Type 1 – 5-10 years after diagnosing

Type 2 – at the moment of diagnosis

Prevention:

- ✚ Keeping blood sugar levels + blood pressure + blood lipids (hyperlipidemia) under an optimal control (HbA1C < 7%; 120/70 mmHg respectively).
- ✚ Detecting diabetes early especially when there is a family history of diabetes.
- ✚ Avoiding those substances that serve as toxins to the kidneys such as aminoglycosides &/or non-steroidal anti-inflammatory drugs.
- ✚ Quitting the bad habits like smoking.

Diabetic dermopathy

Definition: It is related to the small blood vessels changes in the skin.

It is the most common skin problems affected not only diabetics, but the healthy persons too.

Signs & Symptoms:

❖ Skin patches

- ✚ Shape = irregular
- ✚ Location = on the front part of the lower legs particularly; other bones prominences like upper arms &/ thighs
- ✚ Appearance = depressed surfaces
- ✚ Color = light brown
- ✚ Pain = asymptomatic
- ✚ Time to resolve = within twelve to eighteen months
- ✚ Treatment = no specific treatment required. Should protect the area from any other trauma/secondary infections.

Type of diabetes affected = both types + healthy individuals

Prevention

- ✚ Good control of blood sugar levels
- ✚ Monitoring blood glucose regularly
- ✚ Regular individual check-ups of the skin, especially of the lower legs, arms, & thighs.

Diabetic Retinopathy

Definition: Damages to the retina caused by long-term high blood sugar levels.

Signs & Symptoms:

No symptoms are noticed until the permanent damages are settled.

Some of the signs when the complication are developed, include:

- Blurred vision
- Having constantly red eyes & pain
- In your field of vision, you might see:
 - Black spots
 - Partial/total loss of vision
 - Veil/shadow

Type of diabetes affected: both types

Prevention:

- ✚ Good control of your blood sugar levels
- ✚ Training of diabetic patients on recognizing in time the symptoms of diabetic retinopathy
- ✚ Always consult your doctor for any problems you notice in your vision.

Diabetic Foot (Feet) & Related Problems

Definition: Damages to the feet due to persistent high blood glucose levels.

Signs & Symptoms:

- Pain = is a sign of:
 - Bruise
 - Sprain
 - Overuse
 - Strain
 - Shoes not fitting well
 - Infection
- Swelling = is a sign of:
 - Shoes not fitting properly
 - Inflammation/infection
 - Poor blood circulation in veins
- Redness = is a sign of:
 - Infection
 - Abnormal rubbing of shoes/socks
- Poor circulation:
 - Claudication = pain in the buttocks/legs that worsen while walking; & stops with rest.
 - No growing hair = in the lower limbs/legs

- Hard shiny skin in the legs
- Skin infections difficult to treat & disappear
- Feet neuropathy = damages to the nerves that runs into the feet.

Type of diabetes affected: each type

Prevention:

- ✚ Should control diabetes well
- ✚ Examine regularly your feet and legs
- ✚ Train diabetic on how to diagnose feet problems
- ✚ Doing regular exercises
- ✚ Choose the right foot-ware (avoid too tight ones)
- ✚ Clear your foot wear to avoid injuries to your feet
- ✚ Ask your doctor to examine your feet with a microfilament at least once a year.

Diabetic Erectile Dysfunction & Impotence

Definition: Disability of a diabetic male to get a firm erection for a successful sexual intercourse.

Signs & Symptoms:

- No sexual desire or sexual interest.
- Unable to get an orgasm.
- Inability to get erection enough for a successful intercourse.
- No/difficulty to ejaculate
- Although persistently erected, no sexual desire is present.

Types of diabetes: Every type.

Prevention:

- ✚ Closely monitor and control your blood sugar levels.
- ✚ Stop smoking.
- ✚ Quit using alcohol or other illicit drugs that fade your sexual desire and performance.
- ✚ Rigorously follow your diabetic diet.
- ✚ Get enough rest and sleep.
- ✚ Be more physically active.
- ✚ Control other problems associated with diabetes such as high cholesterol and high blood pressure.

Diabetic Fatty Liver Disease (Hepatosteatorosis)

Definition: Elevated concentration of fatty in the liver, especially of triglycerides.

Signs & Symptoms:

- Usually, no symptoms are present
- Sometimes, is associated with general malaise and fatigue
- Gastrointestinal discomfort

In severe cases (steatosis converted to cirrhosis):

- Edema & ascites
- Jaundice
- Bruising
- Mental confusion

Types of diabetes: Type 2

Prevention:

- ✚ Conducting a healthy lifestyle:
 - ✚ No alcohol
 - ✚ Balanced diet
 - ✚ Controlling your weight and blood sugar
 - ✚ Being physically active

Diabetic Gastroparesis

Definition: Delayed stomach emptiness due to malfunction in its muscles.

Signs & Symptoms:

- Upper gastrointestinal discomfort:
 - Nausea and/or vomiting
 - Early feeling of fullness
 - Heartburn
 - Abdominal bloating
 - Gastroesophageal reflux
 - Diminished/loss of appetite

Types of diabetes: Either type.

Prevention:

- ❖ Primary:
 - ✚ Strict monitoring and controlling diabetes to prevent neuropathy
- ❖ Secondary:
 - ✚ Changes in your diet (which will help control diabetes too)