**Gestational Diabetes Mellitus**

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**Question 1:**

Gestational diabetes mellitus or GDM is the intolerance of glucose detected during pregnancy. This intolerance is, however, not limited to having its biological onset during pregnancy as it may have begun before or started with the pregnancy. Although mild or significantly asymptomatic as compared to normal diabetes, GDM can create difficulties for the pregnancy itself. It is also an indication for a high risk of contracting type 2 diabetes mellitus once the pregnancy is over. (Metzger BE, 1998) Biologically, GDM is generally associated with hyperglycemia that results from insulin resistance. This is proven by the fact that there is no significant difference between insulin levels in the bloods of normal pregnant women as compared to pregnant women with GDM. Glucose levels, however, show a stark difference. This has led to the conclusion that GDM happens due to dysfunctional beta cells in the pancreas. (Alexandra Kautzky-Willer, 1997)

**Question 2:**

GDM can create complications to the pregnancy and leads to several medical aberrations in both mother and child. (Emma C. Johns, 2018) These are some of the most common complications in the mother if she contracts GDM:

1. The risk of contraction of type 2 diabetes mellitus in women with prior history of GDM is seven times that of normal women.
2. GDM in women is associated with gestational hypertension (increased blood pressure).
3. Pre-eclampsia (presence of protein in urine and a high blood pressure) has a higher risk of developing in pregnant women with GDM.
4. Polyhydramnios (exorbitant accumulation of the amniotic fluid) is also associated with GDM.
5. Gestational diabetes creates risk of recurrent GDM in subsequent pregnancies.

**Question 3:**

Complications in the child (Emma C. Johns, 2018) as a result of GDM are as follows:

1. An immediate effect of GDM on the child is macrosomia (higher than normal weight of the newborn).
2. The baby also has a tendency to have a greater than normal BMI later in life.
3. Malformations in the fetus are also associated with GDM.
4. There is an increased risk of perinatal death.
5. Neonatal unit admission as well as neonatal hypoglycemia are also associated with GDM in the mother.

**Question 4:**

There are several risk factors associated with development of gestational diabetes mellitus. (MacNeill, 2001) Some of these are as follows:

1. An immediate family member with diabetes mellitus.
2. Physical inactivity in the pregnant woman.
3. A higher than normal BMI can lead to the conclusion of presence of obesity which increases the risk for GDM.
4. Hypertension in the pregnant woman.
5. Presence of polycystic ovary syndrome (PCOS) also increases risk for GDM.

**Question 5:**

ADIPS is the Australasian Diabetes in Pregnancy Society created in 1991 to reach an official consensus on the diagnosis and testing for gestational diabetes mellitus (GDM). (Nankervis A, 2014)

Official guidelines by ADIPS for management of type 1 diabetes mellitus before conception (Aidan McElduff, 2005) are as follows:

1. Management of blood glucose levels by a multidisciplinary team of physicians should be strictly done.
2. There should be thorough evaluation and treatment of medical risk factors that might lead to diabetes (these include retinopathy, neuropathy, nephropathy and cardiovascular disease).
3. All the medication currently in use by the patient of type 1 diabetes mellitus should be immediately reviewed.
4. Any statins, ACE (angiotensin-converting enzyme) inhibitors and angiotensin-II receptor blockers should be stopped.
5. Insulin (or metformin as an alternative) should be used as a method of keeping blood glucose levels in control.
6. Thyroid function should be measured in the women with type 1 diabetes mellitus before conception.
7. Preconception counselling with complete education and guidance regarding the risks and consequences should be administered.

**Question 6:**

The oral glucose tolerance test or OGTT is carried out in order to measure the level of glucose present in the blood after a certain sugar uptake. The steps in this test are as follows:

1. The patient is supposed to eat normally in the days leading to the test.
2. The patient should be fasting for eight hours leading to the test. This should only include water uptake and no other beverages.
3. It is also prescribed to visit the bathroom right before the test as the lab may ask for a urine sample.
4. In the lab, the healthcare professional will draw blood from the patient as an indicator of glucose level while fasting.
5. The patient will then be given a 50-gram glucose solution and the patient will have to wait for an hour.
6. After one hour, the healthcare professional will take another sample of blood from the patient and test it.
7. If GDM is feared, a second step is undertaken. This involves drinking a 100-gram glucose solution after blood sample at fasting is withdrawn. Then a blood sample at one hour, two hours and three hours are withdrawn and tested.
8. Blood glucose levels at all these times are compared to confirm presence or absence of GDM.

If the result after the first one-hour step is less than 7.8 mmol/L, there is no risk of GDM so the second step is not recommended. If it is higher than this, the second step of confirmation is taken. The confirmation of diagnosis after the three-hour test is a level greater than 10 mmol/L at one hour, 8.6 mmol/L at two hours and more than 7.8 mmol/L after three hours.

**Question 7:**

The risk factors for developing type 2 diabetes mellitus (Valeriya Lyssenko, 2008) include:

1. Family history of type 2 diabetes mellitus as especially immediate family members indicate presence of genetic susceptibility factors.
2. A higher than normal BMI or obesity can also tip the scales towards type 2 diabetes.
3. Hypertension (increased blood pressure) can also be a risk factor for type 2 DM.
4. Smoking increases the risk for contraction of type 2 DM.
5. High liver enzymes and triglyceride levels in the blood also prove to be a risk factor for type 2 DM.

To decrease risk of these factors, steps taken can include:

1. Proper diet which reduces sugar intake.
2. Controlling blood glucose levels by regular monitoring.
3. Testing for any increase in blood glucose levels (OGTT).
4. A healthy lifestyle including regular exercise.
5. Avoiding intake of substances that increase risk of hypertension or cardiovascular disease.

# **References**

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