

## **Type 1 - Diabetes Mellitus: Etiology and epidemiology**

### **Abstract**

According to first point of view about the physiopathology and management of type 1 diabetes it seems to be easy but as we go deep into its study the less it seems to be known. Koch's postulates is not followed in all the cases of type 1 diabetes mellitus and this is concluded after knowing more about the disease's pathogenesis. The main cause of disease now days is the surroundings, environmental factors, genome, metabolism and immune system that varies in different individuals. But according to the ancient researches it was considered like a localized autoimmune disorder in which beta cells producing insulin are destroyed

During ancient times before giving type 1 diabetes recognition of a complaint, people linked the symptoms of the complaint like inordinate urination, inordinate thirst and the agreeableness of the urine that attract the ants and also it was noted on by the croakers and latterly it was nominated Type 1 Diabetes. Since it was a new term for the people of ancient times they assumed type 1 diabetes to be a fatal complaint as they had no idea about the history and cause of the disease and because of this partial knowledge the cases suffering from the complaint failed from acute complications. The involvement of pancreas in type 1 diabetes was proved in the time 1889. After the time when pancreas part was proved the scientists plant out that beast insulin can be utilized in the treatment of complaint of the subject and they concluded that diabetes is not fatal it is just a bare issue of life.

**Keywords:** Insulin, Glycosuria, Hyperglycaemia, Polydypsia

## Introduction

The physiopathology and management of type 1 diabetes appear to be simple at first glance, but as we delve deeper into its study, the less it appears to be known. Koch's postulates are not followed in all cases of type 1 diabetes mellitus, and this is concluded after learning more about the disease's pathogenesis. The main cause of disease nowadays is the environment, environmental factors, genome, metabolism, and immune system, which varies between individuals. However, ancient research considered it to be a localised autoimmune disorder in which beta cells producing insulin are destroyed. [1]

Primary disease prevention is difficult because the patients who are diagnosed with the disease have no connection to the disease and do not have the fatal combination of HLA alleles. The cure for the subject's complaint is still unknown, but the complaint is less common, affecting only 5-10% of the population.

Even with advances in medical technology, the blood sugar levels [glycemic control] of the majority of type 1 diabetes mellitus patients are not improved, and advanced therapies are out of reach for the majority of them due to high costs. given to understand the cause and treatment of the patient's complaint One model that was introduced and is still used today was developed by George Eisenberth in 1984. Not only have new types of insulin been developed, but so have new methods of administering it.

These are just few examples , These and other inventions helped people to manage their conditions themselves indeed increased mindfulness about the complaint in them.

In 1980s to check the insulin situations of the cases they were handed with blood glucose observers in which they determine the demand of insulin and its normal position. In 1986, The insulin pen delivery system appeared, These were the safe and accessible way of delivering the needed cure of insulin.[1]

The station of academy scholars towards diabetic children needs to change and preceptors can play a pivotal part in bringing about this change. As a part of the mindfulness drive to educate people about the complaint the mindfulness programme was especially designed keeping preceptors in mind as they deal with kids and it is imperative for them to know what to do when a child is suffering from this condition.

We have had cases where classmates ignore diabetic children to an extent where no one indeed wants to sit with them. This kind of gesture not only depress the child but also makes them feel else about the condition and preceptors can play an important part in this.[1]

Children with insulin dependent diabetes need redundant care especially at the academy They need to drink water and urinate constantly so preceptors should be made apprehensive of their condition. Preceptors should be trained to handle the situations like the child fainting or suddenly collapsing when blood sugar drops.

According to first point of view about the physiopathology and management of type 1 diabetes it seems to be easy but as we go deep into its study the less it seems to be known. Koch's postulates is not followed in all the cases of type 1 diabetes mellitus and this is concluded after knowing more about the disease's pathogenesis. The main cause of disease now days is the

surroundings, environmental factors, genome, metabolism and immune system that varies in different individuals. But according to the ancient researches it was considered like a localized autoimmune disorder in which beta cells producing insulin are destroyed.

Primary prevention of the disease is difficult because the patients that are diagnosed with the complaint do not have any relation with the disease and even they do not have the combination of HLA alleles that is fatal. Cure for type 1 diabetes is still unidentified but the complaint is less common, only 5-10% of people have it. Even after the advancement in the medical technology the blood sugar levels [glycaemic control] of most of the patients suffering from the complaint of the disease is not enriched and for most of them the advanced therapies are not approachable due to its high expenditure. Given to understand the cause and cure of the complaint of the subject. One of that model that was introduced is still used nowadays that was developed by George Eisenberth in 1984. Since the time not only we have new types of insulin but there are also new ways of delivering it.[2]

## **Etiology**

The true etiology of type 1 diabetes is still unidentified but it's believed there is some kind of inheritable predilection with an association with HLA alleles. But the introductory cause of Type 1 diabetes mellitus is autoimmune destruction of beta cells producing insulin leading to insufficiency of insulin in body. This process can continue for months or times before any symptoms appear.

Since type 1 diabetes involves an inherited vulnerability it's said that the threat of growing type 1 diabetes without any family ancestry is least. Presence of diabetes in seed is determined by knowing if the parent is diseased or not. If both the parents are diagnosed with type 1 diabetes also the seed becomes further prone to disease.[2]

Other threat factors for the complaint of the subject involves:

It is said that there are numerous contagions that may trigger the development of Type 1 diabetes in individualities by breeding the vulnerable system to turn resisting about the body. In this case body becomes weak because the vulnerable system of the body harms itself rather than contributing in prevention of the infection and sickness. Some contagions that are said to detector type 1 include are Measles, Cocksackie, Enterovirus.

Some studies have linked that the Chinese people are less prone to type 1 diabetes mellitus while Caucasians living in US are more susceptible to Type 1 diabetes.[3]

It has been suggested that people who live in northern countries are outdoors more so they're in close proximity with each other so they are potentially leading to further viral infections. So people who live in northern climates are at advanced threat for developing complaint. Conversely people living in southern zone are less likely to develop complaint.

Other autoimmune disease that increase the threat of type 1 includes: Graves' Disease, Multiple Sclerosis and Pernicious Anaemia. Salutary sources can also lead to type 1, One of the illustrations is Children who are given cow's milk at an early stage can suffer from type 1.[3]

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## **Epidemiology**

Type 1 diabetes preliminary known as juvenile or insulin dependent diabetes is more seen in children but it can do in other age groups too. In recent times there is an increase in the number of cases suffering from type 1 diabetes. It has changed from 2% to 5-10% now. Due to increase in rise of number of patients a survey was done in United States to check the statistics of prevalence of type 1 diabetes mellitus. In that it was seen that currently 1.24 million people are diagnosed with type 1 and this ratio may increase up to 5-6 million by 2050. T1DM is one of the most frequent habitual conditions in children but can happen at any stage of life. There has been a slightest increase in the prevalence and frequency of T1DM, constituting roughly 5% to 10% of people with diabetes. In the United States, there are an estimated 1.24 million that are diagnose with type 1 and this rate may increase up to 5-6 million by 2050. The age group which is more receptive to type 1 diabetes is 4 to 6 times and early puberty. It is seen that geographical location also plays a vital role in determining the susceptibility of the disease. Lowest incidences of type 1 were found in China and Venezuela while higher incidences were seen in Finland and Northern Nations. Type 1 diabetes is more common in non- Hispanic whites in United States, it affects both the genders equally. [4]

## **Discussion**

People linked the symptoms of the complaint like inordinate urination, inordinate thirst, and the agreeableness of the urine that attracts the ants during ancient times before giving type 1 diabetes recognition of a complaint, and it was also noted on by the croakers and later it was nominated Type 1 Diabetes. Because it was a new term for the people of ancient times, they assumed type 1 diabetes was a fatal complaint because they had no knowledge of the disease's history or cause, and as a result, cases suffering from the complaint died from acute complications.

There are various tests that are used for the identification of diabetes mellitus. Usually blood glucose levels are used to diagnose the disease but with time there is an advancement in medical technology so now various other tests are also done to diagnose the disease.[4]

### **Blood Sugar Level Tests:**

**1] Dieting Blood Sugar Test-** In this blood sample is collected after 12-14 hours of fasting .Normal blood sugar position is 70-110mg/dl. If the fasting blood sugar position is lower than 100 mg/dl also sugar position is considered normal .If fasting blood sugar position lies in the range of 100-125 mg/dl also the person is in pre diabetic stage and if the sugar position is 126mg/dl or advanced person is diagnosed positive for diabetes.

**2]Post Prandial Blood Sugar Test-** This test is done after 2 hours of mess

**3] Random Blood Sugar Test-** In this blood sample is collected at any arbitrary time and can be verified by reprise. Irrespective of what you ate last the blood sugar level higher than 200mg/dl or higher confirms presence of diabetes particularly when coupled with any of the symptoms of diabetes mellitus. For example – polydipsia ,polyuria etc.[4]

Lately utilization of the hemoglobin A1c [HbA1c] has been recommended for the opinion of diabetes.

**Glycated Hemoglobin [A1c] Test-** This blood test identifies the average blood sugar position for the history of 2-3 months. This test should be done according to the criteria given by National Glycohemoglobin Standardization Program. It checks for the chance of blood sugar that is connected to the carrier protein in red blood cells[hemoglobin].If you have an advanced blood sugar position also further more hemoglobin you will have with sugar attached.

Hemoglobin A1c is used as biomarker for glycemia that checks for the non enzymatic glycation of hemoglobin. If the Hemoglobin A1c position is 6.5 % or advanced then it indicates diabetes but if the position is below that also the person has a normal blood sugar position.[5]

### **Advantages of Hemoglobin A1c Test**

In this test the case doesn't have to gormandize making the process much easier for the case and pathology labs. This test has a lesser logical stability than blood sugar tests. There is also lowerhabitual friction during ages of illness and stress.

But the only disadvantage of this test is that its vacuity is limited to particular countries and it is more precious than blood sugar tests. Other than that cases suffering from Anaemia and Hemoglobinopathies cannot suffer this test because of shorter life of red blood cells in these conditions. So people suffering from any of these problem must go with blood sugar tests as this test is not preferred for them.

Workshop of HbA1c evaluation are largely formalized through the National Glycohemoglobin Standardization Program (NGSP). Point-of-care A1C tests are not sufficiently accurate at this time to use for individual purposes.[6]

Although both glucose and HbA1c criteria are available for the opinion of diabetes, one of these is generally sufficient to make the opinion in the setting of the characteristic clinical picture of polyuria, polydipsia, weight loss, and fatigue. Both an HbA1c test and glucose results harmonious with diabetes may be needed to make the opinion if the clinical picture is not clear. describes the current individual criteria for diabetes, acclimated from American disabilities act bracket and opinionrules <sup>3</sup>, and from Type 1 Diabetes Treatment and guideline.[7]

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### **Conclusion**

When the proper study about the complain was done by the scientists, When the causes and symptoms of the complaint was studied there was a significant progress seen in etiology of type 1 diabetes. It was seen that the main cause of the complaint of the subject is the inheritable factors, surroundings and the vulnerable system of a person .But still the study of the complaint is relatively confusing arising too numerous questions related to the complaint like why are there particular genes that are causing the complaint , What is the phenotypes and the environmental factors leading to the onset of complaint and the factors leading to the growth and development of the complaint..... ..

Answering to these questions is a critical need because people suffering from the complaint has to go through numerous unidentified symptoms , demoralized life style , hypoglycemia and numerous other complications. Now the main target of the current exploration is to concentrate on the etiology of the complaint so as to help the croakers to find about the further treatments of the complaint so as to help it or targeting the slow progress of the complaint by new vaccines to help the onset of the complaint. Since it is a long handling race or the battle against the complaint but experimenters had made it easy for us to fight against the complaint to help its onset or its progression.

UNDER PEER REVIEW

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