

**A PAPER DELIVERED ON THE
“CAUSES OF DIABETES”**

BY

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HELD ON THE

19TH MARCH, 2009

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OFF TAIWO ROAD, ILORIN**

Introduction.

What is Diabetes?

A syndrome of prolonged hyperglycemia and disordered metabolism.

- Develops when the pancreas does not produce enough of the hormone insulin.
- Or to a combination of insulin resistance and inadequate insulin secretion to compensate.

Types of Diabetes

- Primary diabetes
- Secondary diabetes.

SECONDARY DIABETES

- Very rare – only 1-2% of all cases
- High blood sugar is a complication of other diseases that directly or indirectly affect the pancreas or action of insulin on target organs.
- **Pancreatic disease**
 - Cystic fibrosis
 - Chronic related pancreatic disease
 - Pancreatectomy
 - Hereditary haemochromatosis
 - Carcinoma of the pancreas
- **Endocrine disease**
 - Cushing's syndrome
 - Acromegaly
 - Thyrotoxicosis
 - Phaeochromocytoma
 - Glucagonoma
- **Drug Induced Disease**
 - Thiazide diuretics
 - Corticosteroid therapy
 - Atypical antipsychotics
 - HIV drugs
- **Insulin Receptor Abnormalities**
 - Congenital lipodystrophy

- Acanthosis nigricans
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- **Gestational Diabetes**
- Pregnancy induced
- Glucose level returns to normal after pregnancy
- About 50% develop into Type II Diabetes in future
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- **Genetic Syndromes**
- Friederich's ataxia
- Dystrophia myotonica
- Down's syndrome
- Parader- Willi syndrome
- Progeria

PRIMARY DIABETES

Type I Diabetes

- Previously known as insulin dependent or juvenile onset diabetes
- About 5 – 10 % of cases
- Uncommon in Africans
- Results from progressive destruction of pancreatic B cells
- This destruction is by auto- antibodies
- Results in severe insulin deficiency
- Strong genetic susceptibility – 95% of patients possess specific HLA genes
- These genes can be inherited
- Environmental factor involvement has also been postulated
- Early exposure to viruses, chemical toxins and cow's milk
- Hygiene theory.

Type II Diabetes

- Previously known as non-insulin dependent or adult onset diabetes
- Most common type > 95%

- Very common among Africans, South Asian, Caribbean, Middle Eastern and Hispanic- Americans
- Hyperglycemia result from a combination of insulin resistance and inadequate insulin secretion by pancreas to compensate
- Heterogeneous group of conditions for which in most cases the cause is unknown.
- Genetic susceptibility has been postulated to play a significant role though in most cases the genes have not been identified. Evident of genetic cause is supported by strong inheritance in type II diabetes.
- Other rare subtypes of type II diabetes have had their gene mutations identified e.g. MODY and others.
- Environmental factors
 - Low weight at birth and also at 12 months of life predisposes to diabetes later in life..
- Obesity and physical inactivity
 - Obesity is strongly associated with diabetes
 - Obesity is BMI > 30kg/m²
 - Association between obesity and type II diabetes varies with different ethnic groups: 30% in Chinese/Japanese; 70% in North Americans, Europeans and Africans; 100% in Pima Indians
 - Obesity also associated with other chronic diseases like hypertension, cancer, osteoarthritis, cardiovascular diseases, obstructive sleep apnoea and asthma
 - Relationship between obesity and type II diabetes, hypertension, and heart disease is thought to be due to insulin resistant and compensatory hyperinsulinaemia.
 - Fat cells secrete some chemicals (adipokines) which may contribute to the development of insulin resistance in obese diabetics.
 - This is more significant in persons with abnormally high waist – to – hip ratio signifying visceral obesity.
 - Lack of sufficient physical activities is the second most important contributor to preventable deaths in the Western world.
 - Studies show that the risk of type II diabetes is about half among men who exercise five or more times weekly compared to those who exercise once a week.
 - Sedentary lifestyle combine with high food intake predisposes to over weight and obesity.

- Exercise can independently result in increased insulin sensitivity regardless of weight loss by re-distributing fat deposition as observed in Sumo wrestlers.
- Diabetes paradoxically regarded as “a disease of the poor in rich countries and of the rich in poor countries”.

WHAT DOES NOT CAUSE DIABETES

- Eating sweet or the wrong kind of food does not cause diabetes.
- Stress does not cause diabetes
- Diabetes is not contagious.

CONCLUSION

- The cause of diabetes is multifactorial
- Non-modifiable risk factors include family history ethnicity and age.
- Modifiable risk factors are obesity and sedentary lifestyle
- Whether an individual develops type II diabetes or not is largely due to genetic factors.
- When a person develops diabetes depends on lifestyle and is more relevant.
- Diabetes diagnosed between 40- 59 can cause a reduction in life expectancy by 5 – 10 years.
- Diabetes diagnosed after age 70 has little appreciable effect.
- It is never too early or too late to start living a healthier lifestyle.

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