DIABETES MELLITUS: A HEALTH DISPARITY IN AFRICAN AMERICANS AS COMPARED TO WHITES IN MASSACHUSETTS

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WHAT IS DIABETES MELLITUS?

- Diabetes Mellitus is a metabolic disease that results in high blood glucose levels (hyperglycemia).

- Diabetes develops when an individual’s pancreas fails to produce enough insulin and/or the body’s cells do not respond properly to the insulin being produced.

- Two main types of diabetes:
  - Type 1 Diabetes
  - Type 2 Diabetes
SYMPTOMS AND TREATMENT/MANAGEMENT

- Symptoms:
  - frequent urination
  - excessive thirst
  - extreme hunger
  - unusual weight loss
  - fatigue
  - frequent illness or infection
  - vision changes
  - tingling or numbness in the hands or feet

- Good nutrition, daily exercise, monitoring of blood glucose, and regular hemoglobin A1c tests are the basis of treatment for diabetes. (3)

- Insulin is required for the treatment of type 1 diabetes, and oral medications and insulin may be prescribed to an individual with type 2 diabetes if needed. (12)
RISK FACTORS

Risk factors for type 1 diabetes are less clear than those for type 2 diabetes; however, autoimmune, genetic, and environmental factors are involved.

Risk factors for type 2 diabetes include:
- Genetic Predisposition/Family History
- Age
- Race/Ethnicity
- Prior History of Gestational Diabetes
- Impaired Glucose Metabolism
- High Blood Pressure
- High Cholesterol
- Obesity
- Malnutrition
- Physical Inactivity
DIABETES – A HEALTH DISPARITY

- In 2010, Massachusetts had a total population of 6,613,100 - 78% White and 6% Black. (11)

- According to the Massachusetts Department of Public Health, the prevalence of diabetes in the total population of Massachusetts is 7.5%. (5)

- In Massachusetts, Blacks have a higher prevalence of diabetes as compared to Whites. (10)

- The prevalence of diabetes is 7.0% in the White population and 11.0% in the Black population in Massachusetts. (5)
FACTS AND STATISTICS

- According to the AHRQ, Blacks receive a **poorer quality** of ambulatory care and thus have **more hospital admissions** as compared to their White counterparts. (13)

- Diabetes-related inpatient hospitalizations were **three times higher** among Blacks (1276.0 per 100,000) as compared to Whites (426.3 per 100,000). (5)

- Diabetes-related emergency room visits were **more than three times higher** among Blacks (316.4 per 100,000) as compared to Whites (96.2 per 100,000). (5)
The overall diabetes mortality rate for Blacks is more than twice that of Whites in Massachusetts.

The state age adjusted mortality rate for the White population is 13.8 per 100,000 persons and 30.7 per 100,000 persons for the Black population.
CAUSES OF THE DISPARITY – GENETIC AND ENVIRONMENTAL FACTORS

- The role of genes in developing diabetes is suggested by the higher rate of diabetes in Blacks as compared to Whites. (9)

- The development of insulin resistance and type 2 diabetes is also strongly correlated with physical inactivity and obesity. (12)

- In Massachusetts, 59.2% of the White population is obese while 66.7% of the Black population is obese. (11)

Obesity Rate by Race/Ethnicity in Massachusetts, 2010

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<th>Percentage of Adults Who are Obese</th>
<th>54</th>
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<th>58</th>
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SOCIOECONOMIC STATUS (SES) AND DIABETES

- In Massachusetts, 15% of the total population is below the poverty line – 11% White and 28% Black. (11)

- Results from the Black Women’s Health Study suggest that the development of diabetes in Black women is influenced by both:
  - Individual SES
  - Neighborhood SES (4)

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[Massachusetts Poverty Rate by Race/Ethnicity, 2010 graph]

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COMPLICATIONS OF DIABETES

- Individuals with diabetes are:
  - **two** times more likely to have high cholesterol and suffer from obesity
  - **three** times more likely to have hypertension
  - **four** times more likely to suffer from heart disease or stroke than individuals without diabetes

- Other complications related to diabetes include diabetic retinopathy, renal disease, nervous system damage, and non-traumatic lower-limb amputations.

- Blacks have a **higher prevalence** of most these complications including hypertension, heart disease, diabetic retinopathy, and lower extremity amputation.
AN EMERGENCY COMPLICATION

- Diabetic ketoacidosis is a complication of diabetes that occurs when the body cannot use glucose as a fuel source due to the lack of insulin production.

- Diabetic ketoacidosis occurs primarily in individuals with type 1 diabetes. It is rare in individuals with type 2 diabetes.

- However, Blacks are more likely to have diabetic ketoacidosis as a complication of type 2 diabetes.
CURRENT RESEARCH

- The National Institutes of Health is involved in trying to research a cure for diabetes especially type 1.

- There are different approaches to finding the cure including the following:
  - Pancreas transplantation
  - Islet cell transplantation
  - Artificial pancreas development
  - Genetic manipulation via insertion of a human insulin gene into fat or muscle cells
CONCLUSION - REDUCING THE DISPARITY

The Massachusetts Diabetes Prevention and Control Program are striving to:

- Improve the public's access to affordable, quality diabetes care and services, especially for high-risk populations such as African Americans.

- Educate the public on how to prevent and manage diabetes.

(10)
REFERENCES