TYPE 1 VS TYPE 2 DIABETES MELLITUS

FLAME LECTURE: 1

GIANG 10.29.18

LEARNING OBJECTIVES

- To understand the differences between Type 1 Diabetes Mellitus and Type 2 Diabetes Mellitus
- To appreciate the impact of Diabetes Mellitus on the United States population

DIABETES

- A group of diseases resulting in high glucose levels in the blood and potentially urine
- Body is unable to produce or to respond to insulin
- Organ damage results if left untreated

EPIDEMIOLOGY

- The current impact of Diabetes Mellitus in the United States
  - 30.3 million Americans are living with Diabetes Mellitus
  - 84.1 million Americans are living with Pre-diabetes (1/3rd of the population)
  - 1 out of 3 Diabetics are unaware they have the disease , while 90% of Pre-diabetics are unaware of their health status
  - Diabetes rates have tripled over the past 20 years
  - Diabetes is the 7th leading cause of death in the United States
  - Estimated annual healthcare cost was over $320 billion in 2017

PRESENTATION

- Initial symptoms may include excessive thirst, urination and/or weight loss
- In many instances, symptoms are absent or mild leading to delays in diagnosis
- In the most severe cases, DM may present initially as diabetic ketoacidosis or hyperosmolar nonketotic coma

DKA VS. HHS

SEE FLAMES 9/10 FOR MORE DETAILS

DKA

- Elevated plasma glucose >250
- Ketones elevated
- Alert except in severe cases
- pH < 7.3
- HCO3 < 15
- **Most associated with Type 1**

HHS

- Extremely elevated plasma glucose >600
- Stupor or coma
- pH > 7.3
- HCO3 > 15
- **Most associated with Type 2**

DIAGNOSIS

- Screening Tests
  - Fasting plasma glucose (FPG) ≥ 126 mg per dL
  - Two-hour post-prandial plasma glucose (OGTT) ≥ 200 mg per dL
  - Random plasma glucose (RPG) ≥ 200 mg per dL with classic symptoms of hyperglycemia
  - HbA1C ≥ 6.5%
- Confirmatory Tests
  - The above screening tests should be confirmed with repeat testing on a separate day with the exception of RPG
- Pre-Diabetes
  - Impaired Fasting Glucose - 100 to 125 mg per dL
  - Impaired Glucose Tolerance - 140 to 199 mg per dL
  - HbA1C – 5.7% - 6.4%

TYPE 1 vs. TYPE 2 DIABETES

TYPE 1 DIABETES

- Autoimmune
- Begins at younger age generally
- Smaller percentage of cases
- Usually sudden onset
- Insufficient insulin

TYPE 2 DIABETES

- Not Autoimmune
- Older age at onset generally
- Accounts for majority of cases
- Usually gradual onset
- Insulin resistance initially

LONG-TERM EFFECTS

- Neuropathy including amputation
- Nephropathy
- Retinopathy including blindness
- Sexual dysfunction
- Increased risk for cardiovascular and cerebrovascular events

GENERAL MGMT

- Diet and Exercise
- Glucose Control - HbA1c goal < 7%
- Oral hypoglycemic agents
  - Biguanides
  - Insulin Secretagogues (Sulphonylureas and Non-Sulphonylureas)
  - a-glucosidase inhibitors
  - Thiazolidinediones
- Insulin therapy

OTHER REFERENCES

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3. Diabetes Mellitus Screening and Diagnosis. Pippitt, K. etal. Am Fam Physician. 2016 Jan 15;93(2):103-9