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### Diabetes

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# Diabetes

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## Introduction

Providing care for diabetic patients has become the norm in today's healthcare field. The number of patients diagnosed and those being treated for diabetes has increased over the years. Managing and understanding the disease is an important aspect to implement an appropriate treatment plan. It is essential for healthcare providers to thoroughly understand the pathophysiology of diabetes and keep up with current research. This will pave the way for advanced therapeutic application in regards to medication and treatment methods.

In the current clinical setting, the majority of the patient population being hospitalized have type 1 or type 2 diabetes. This prevalence calls for a change in how diabetes is currently managed in the hospital as well as within the community. Not only do healthcare professionals need knowledge in diabetes, but patients will also need a better understanding of their disease process and disease management.

## Signs and Symptoms

- Increased thirst
- Increased hunger
- Dry mouth
- Frequent urination
- Fatigue
- Unexplained weight loss
- Blurred vision and headache

(McCance and Huether, 2019, p687 & 690).

## Risk Factors

- Obesity
- Race
- Family history
- Environmental factors
- Hypertension
- Abnormal cholesterol level

(The American Diabetes Association, 2019)

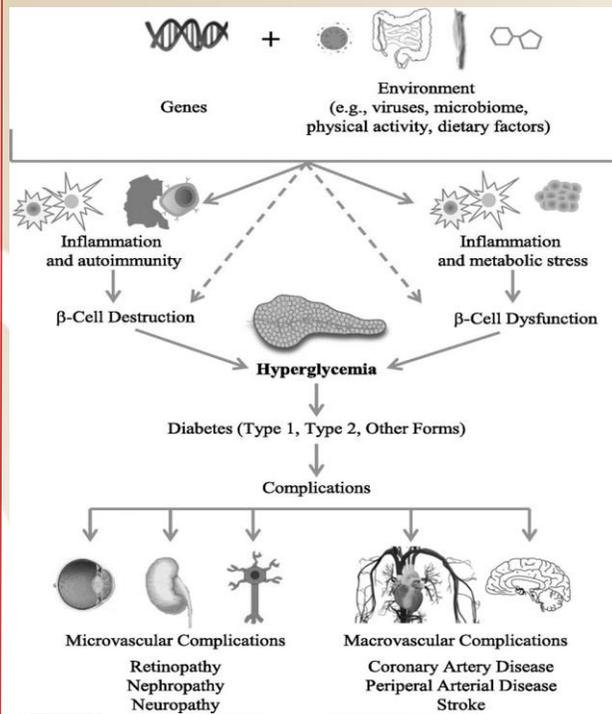


Figure 1. Genetic and environmental risk factors. (The American Diabetes Association, 2019)

## Underlying Pathophysiology

- The diagnosis of Diabetes Mellitus is growing rapidly around the world. Therefore, healthcare professionals need to understand the pathophysiology of the disease to provide appropriate care.
- Type 1 diabetes occurs as a consequence of an autoimmune assault on the beta cells in the islets of Langerhans in the pancreas. (Mayo 2016).
- Type 2 diabetes occurs as a result of insulin resistance, in which insulin production is significantly increased initially, but subsequently decreases as a result of beta cell failure. Genetic factors, environment, and co-existent autoimmunity have been identified as a predisposing factor in type 1 diabetes. Upon diagnosis of type 1 diabetes, individuals will need life long insulin administration (Mayo 2016).
- Type 2 diabetes is the most common type and is predominantly linked to the development of obesity. In type 2 diabetes, glucagon causes artificially increased blood glucose levels, which places more strain on beta cells causing them to diminish. As the level of blood glucose rise, the individual begins to develop signs and symptoms of diabetes (Mayo 2016).

## Nursing Implication

To provide quality care in the growing population with diabetes, it is important to understand the factors that predispose individuals as well as standards that can help identify and diagnose the condition. Healthcare professionals are first in line to interact with these individuals, therefore identifying those at risk will allow early prevention/treatment plan.

## Significances

- Obesity has become an epidemic here in the western world. Diabetes Mellitus has been linked to the development of obesity. Understanding this linkage and implementing proper prevention plan is curial
- Microbiological agents such as saprophytic flora and infection of the pancreas are possible factors in etiopathogenesis of diabetes mellitus. "Saprophytes in the intestinal tract and other organs lined with mucosa secretory products are able to pass via the bloodstream to the pancreas thus indirectly affecting insulin secretion" (Nikolic, 2018, p110).
- Infection in the body is associated with glucose metabolism and insulin secretion. It also can cause insulin resistance and intolerance
- Diabetic patients tend to lose muscle mass much faster compared to non-diabetic patients. The decreased in muscle mass leads to impaired physical activity, which can result in shortened lifespans. Atrophy, which is the decrease or shrinkage of cellular size, can affect any organ.
- "The mechanism of atrophy include decreased protein synthesis or increase protein degradation, or both. The degradation of protein occurs mainly by the ubiquitin-proteasome pathway" (McCance and Huether, 2019, p47).
- Systemic inflammation also contributes to muscle atrophy by decreasing muscle protein synthesis as well as increasing ubiquitin-proteasome, lysosomal-proteasome and caspase 3-mediated protein degradation.

## Conclusion

New insights of diabetes can significantly improve current clinical practice. This can also bring forth better outcomes in patient care.

With the growing diagnosis of diabetes, it is important to understand the pathological process and implement proper and efficient management approach within the community.

## References

- Mayo, P. (2016). An overview of diabetes. *Nursing Standard* (2014), 30(46), 53. doi:<http://dx.doi.org.ezproxy.otterbein.edu/10.7748/ns.2016.e10386>
- McCance, K. L., & Huether, S. E. (eds.). (2018). *Pathophysiology: The Biologic Basis for Disease in Adults and Children* (8th ed.). St. Louis, MO: Elsevier/Mosby
- Nikolić, D. M. (2018). Diabetes mellitus and obesity as a result of a disrupted homeostatic microbiome. New data on etiopathogenesis of diabetes mellitus. *Vojnosanitetski Pregled: Military Medical & Pharmaceutical Journal of Serbia*, 75(11), 1110–1117. <https://doi-org.ezproxy.otterbein.edu/10.2298/VSP151216028N>
- The American Diabetes Association (2019). *Differentiation of Diabetes by Pathophysiology, Natural History, and Prognosis*. Retrieved from <https://diabetes.diabetesjournals.org/content/66/2/241>



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