Understanding Type 2 Diabetes

Diabetes mellitus is a common metabolic disease that is classified by hyperglycemia due to disruption of normal insulin activity (American Diabetes Association [ADA], 2010). Hyperglycemia can be caused by disruption of insulin production or the body may be unable to respond to insulin (Toniolo et al. 2019). There are various forms of diabetes, for example, Type 1, Type 2, and gestational diabetes. The first type of diabetes is an autoimmune disease that results in complete insulin deficiency caused by the attack of B-cells in the pancreas (ADA, 2010).

While the second type of diabetes is classified as only relative insulin deficiency, typically caused by a secretion defect or insulin resistance (ADA, 2010). Gestational diabetes is restricted to pregnancy and typically goes away after delivery, but does increase the risk for later developing type 2 (ADA, 2010). However, type 2 diabetes is responsible for up to 90% of diagnosed cases (Chireh & D'Arcy, 2019). Common symptoms for diabetes include unexpected weight loss, fatigue, frequent urination, dry mouth, and losing feeling in your feet (Ramachandran, 2014). There are various risk factors for developing type 2 diabetes. The greatest risk factor is obesity, which is typically caused by poor diet and an inactive lifestyle (Reinehr, 2013). Cases of type 2 diabetes has increased greatly in the last 20 years in both children and adults, resulting in a need for prevention awareness (Reinehr, 2013). Type 2 diabetes is expensive and requires a lot of self-monitoring in order to maintain healthy insulin levels, which can put a lot of stress onto affected individuals and their loved ones. According to the American Diabetes Association (2018), the financial weight of diabetes was $327 billion in 2017, which is a rise of $82 billion within the last six years. Since cases and costs are increasing, this disease should be considered as a serious health issue. The concern of type 2 diabetes in adults can be better understood from analyzing the causes, diagnosis, and available treatments.

The exact cause of Type 2 diabetes is undetermined, there are multiple well-known factors that contribute to its development. The most common risk factor for Type 2 diabetes is obesity, which can likely cause the body to develop resistance to insulin (ADA, 2010). A combination of inefficient diet choices and absence of physical activity can be a source of obesity. Another known risk factor of diabetes type 2 is genetics. A family history increases the risk of development, in fact it can increase by up to 40% when parents are diagnosed (Toniolo et al, 2019). While family history increases the risk of developing diabetes, it may have both genetic and environmental dynamics. This means that obese family members may impact the risk of their loved ones by normalizing poor diet choices and sedentary routines. However, genetics can impact the risk by passing down effected alleles like PPARD and PPARGC1A (Temelkova-Kurktschiev et al. 2011). These certain alleles can negatively influence how successful healthy diet choices and physical activity are to these individuals. Which means that even if effected individuals make proactive decisions on diet choices and staying physically active, their bodies do not properly show it and may result in obesity. In addition, certain alleles can be the source of insulin deficiency by reducing the body's ability to respond to insulin. Type 2 diabetes can be attributed to various environmental and genetic factors.

A variety of serious health problems can arise as a result of type 2 diabetes. The most common

cause of death for this form of diabetes is cardiovascular disease (Wu et al. 2014). Cardiovascular disease is a serious health problem because the heart is detrimental to the wellness of the body. Other increased health issues include diabetic neuropathy, nephropathy, and retinopath (Wu et al. 2014). The complication of diabetic neuropathy is losing feeling in body parts due to nerve damage (Wu et al. 2014). Foot amputations are a common consequence of diabetic neuropathy because it causes patients to lose awareness of their feet, making them vulnerable to infections. And untreated infections can spread throughout the body, becoming more serious complications. Nephropathy is a kidney disease complication that occurs when protein is found in urine (Wu et al. 2014). Another complication can result in vessels of the retina being damaged, possibly causing hemorrhage or fluid pooling in the retina (Wu et al. 2014). These health issues can progress slowly so it is important to be aware of the possible complications in order to be prepared. It has been found that the number of health issues is reduced by early detection (Aschner et al. 2016). A simple way to avoid serious health problems is staying alert and on top of your diagnosis. This means keeping up with doctor appointments and doing routine checks on your body, especially foot care in order to catch any problems early. Type 2 diabetes is a serious chronic disease that when untreated can cause severe health issues.

Most common available treatments for type 2 diabetes include lifestyle modifications, oral medicines, and insulin injections. Primary care providers have multiple treatment options available for patients with diabetes that range from prescription drugs to devices (Aschner et al. 2016). The most effective treatment to reduce high levels of glucose in blood is insulin injections (Wu et al. 2014). Insulin is a hormone that regulates glucose levels in blood by converting glucose to cellular energy. So these insulin injections allow people with high levels of glucose in their bodies return to normal levels. A few oral medications that can help regulate type 2 diabetes include biguanides, sulfonylureas, and thiazolidinediones (Wu et al. 2014). These types of medications work in different ways varying from decreasing glucose production to insulin sensitizers to increasing secretion of insulin (Wu et al. 2014). There are various treatment options, yet the most vital part is patient cooperation. Patients with diabetes need to take an active role once they are diagnosed because most treatments are self-monitored and lifestyle changes depend on their actions. There is a diversity in available treatments for diabetes that are individually determined for each patient based on their severity and ability to manage.

Type 2 Diabetes is a chronic disease that impacts people all over the world. While there is not one definite cause of this form of diabetes, genetic and environmental factors have been found to increase the risk (ADA, 2010). Practicing a healthy lifestyle by choosing nutritious diets and maintaining physical activity can reduce both the risk of development and the progression of serious health complications. Cardiovascular disease, kidney disease, nerve loss, and retina damage are serious health issues that can arise from diabetes (Wu et al. 2014). Without proper self monitoring, such serious health issues can slowly progress and turn into life threatening consequences. While oral medicines and insulin injections are common treatments, lifestyle modification is a non-hormonal treatment option available as well (Wu et al. 2014). Primary care providers commonly come into contact with diabetes and it is their responsibility to determine the best fit treatment for each patient. It is very important to understand the risk factors, complications, and treatment options of type 2 diabetes because it is a very common disease.

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