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Frederick Banting

"Diabetes in an enigmatic disease" […] "An awful suffering […] the life is short, unpleasant and painful, the thirst is insatiable […] and death is inevitable" – these words were said by the Greek physician Aretaois in 100 A.D. to describe the widespread disease called "diabetes". This shows us that the suffering caused by diabetes was already a big problem thousands of years ago. However, the misery of this illness would be terminated in the 20th century by "one of the biggest discoveries in medicine" (nobleprize.org, 2009). This essay is about Frederick Banting and the history of his great discovery that changed millions of lives.

First of all, a brief overview of his life should be given: Frederick Grant Banting was born on the 14th of November, 1891 in Alliston, Canada, where he grew up as the youngest of five kids with his parents William Thompson Banting and Margaret Grant. After his school years in Alliston he started studying theology at the University of Toronto; however, he soon changed direction and decided to study medicine. In 1916, he finished studying medicine successfully and directly after that he voluntarily joined the Canadian army and participated in the First World War as a medical officer**.** After the war had ended, he came back to Canada and practised there as a doctor. He started experiments on diabetes with his assistant Charles Best in 1921. Actually, his deliberations turned out to be true and he managed to develop a treatment for diabetes. This led to his receiving of the Nobel Prize in 1923. One year later, Banting married Marion Robertson. The marriage was, however, divorced ten years later, which caused a scandal in the media. Frederick was married again in 1937 to Henrietta Ball. (Wassermann & Hilbrandt, 2013)

In order to understand the importance of the discovery of insulin as the treatment for diabetes, one must first understand what insulin and diabetes are. Insulin is a hormone which is produced in the pancreas, a glandular organ in the digestive system. Its function is to metabolize the glucose in the body for energy. Glucose is a type of sugar found in many carbohydrates, which one consumes while eating. After food intake, the carbohydrates are

broken down in the digestive track into glucose and other substances. Once the glucose enters the bloodstream, insulin causes cells in the body to absorb and store it and use it for energy once needed. Insulin is thus vital to balancing blood glucose levels: it provides the cells with glucose in the situation of stress, between meals or if an extra boost of energy is needed, or – alternatively – when the levels in the bloodstream are too high, it signals to your body to store surplus glucose in the liver. Diabetes is a disease caused by either lack of insulin (Type 1 diabetes) or a deficit in its proper use (Type 2 diabetes). Type 1 diabetes is an autoimmune disease. This means that the body's defence system turns against its own cells and tissues. In this case, the body cannot provide insulin because the immune system has destroyed the insulin producing cells in the pancreas. Most commonly this type is diagnosed among young people; nevertheless, it can also develop in adults. Type 2 diabetes is more frequent and appears very often nowadays. This type is caused by the development of a resistance to the effects of insulin, which often appears as a consequence of consuming too much sugar. If one has type 2 diabetes, this means the body needs more and more insulin to get the same effects. Therefore, your body overproduces insulin to regulate the blood glucose levels. Consequently, after years of overproduction the insulin-producing cells in the pancreas burn out. The result of this vicious circle is type 2 diabetes (Slowiczek & Higuera, 2016).

Last but not least, beginning with the idea and ending with world-wide fame: the story of Banting discovering insulin. In October 1920, Frederick thought about the idea that the pancreatic digestive juices could be harmful to the secretion abilities of the pancreas. A few months later, he took his idea to John Macleod, who was one of the leading figures in the study of diabetes in Canada. Although Macleod was not convinced by this idea, he provided Banting with a minimum of equipment and ten dogs for experiments. Additionally, Banting got an assistant, whose name was Charles Best. The beginning of the experiments was the removal of the pancreas from a dog. The dog ultimately developed the symptoms of diabetes. Subsequently, researchers removed another pancreas and prepared it so they could isolate a substance they named "isletin". This extract was injected into the sick dog whose pancreas had been removed, leading to a drop in its blood glucose level and a healthier and stronger appearance. Treating the dog with a few injections a day kept him healthy and free of symptoms. These results were sensational, and so the research team got

more equipment and support. After many tests in animals, they started testing the extract, now called “insulin”, in humans – initially on themselves, then on others. The first patient participating in these studies was Leonard Thompson, a 14-year-old boy. Before the insulin shots he was near death because of diabetes; after the injections, he rapidly regained strength and appetite. As the extract worked so well, its use spread rapidly and was soon produced on a large scale by the pharmaceutical company Eli Lilly. In 1923 the Nobel Committee decided to award Banting and Macleod the Noble Prize in Medicine (Discovery of insulin, 2009).

This amazing discovery saved and still saves millions of lives and is probably one of the most important ones ever made. Banting and his team are really inspiring for working so hard to develop their idea and finally being successful with their experiments. The world should be glad to have people like Frederick Banting in their community and should also know about and appreciate the discovery of insulin.

979 Words

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