

Diabetes report essay sample

[Health & Medicine](#), [Diabetes](#)



Diabetes is a disease that has been plaguing mankind since as early as the time of the Egyptians in 1552 BC (Canadian Diabetes Association, 2005) as we know it. We, at the moment, understand it to be a disease created by the presence of insulin whether deficiency or resistance to insulin. Insulin is a hormone that is secreted from the pancreas and its purpose is to maintain the levels of glucose within the body (through usage). A lack of insulin would therefore generally result in the inability to absorb glucose hence, for example as a side-effect, sweet urine is produced. Throughout time, our knowledge of diabetes has improved as well as our diagnosis methods and treatment methods. The following is a brief rundown of the development of the understanding of diabetes .

Araetus of Cappadocia (81-138 AD) described diabetes as the “ melting down of flesh and limbs into urine” . This conclusion was drawn from the weight loss that occurred in diabetic patients due to the inability to absorb nutrients. There was more frequent urination, hence the “ melting down of flesh and limbs into urine” was believed. The term Mellitus was then later added due to the sweet tasting nature of the urine. (Welbourn R B in W F Bynum & R Porter). It should be noted that circa 1550, a mathematician by the Geronimo Cardona found the volume of urine is less than the fluids consumed by a person suffering from diabetes rather than the view that more urine was produced than water consumed which was prevalent until that time.

In 164 AD, Galen, a Greek physician, misdiagnosed diabetes as a disease of the kidneys due to the excess amounts of urine produced in diabetic patients, which had seemed to be the only viable conclusion that could be

drawn at that point in medical history (Welbourn R B, in W F Bynum & R Porter, 1993). As quoted in Diabetes Spectrum, 2001, “ He referred to the ailment as “ diarrhoea of the urine” and “ the thirsty disease.””.

After Galen, there was Paracelsus in the 16th century. He had been a renaissance author of the sort and he had believed diabetes to be a serious general disorder. He had believed that the body must maintain a balance of minerals in order to function properly. His view was very different to the others of his time and was viewed with contempt. (Canadian Diabetes Association, 2005).

1674 brought Thomas Willis who had made a claim that rather than being a disease of the kidneys, Diabetes was a disease of the blood and that the sweetness of the urine was originally found in the blood then transferred to the urine.

In 1776, Matthew Dobson found the link between sugar and diabetes through experimentation. He had also found the source of the sweet taste in urine by evaporating a sample of urine from a diabetic patient which resulted in the formation of a powdery white substance which had the properties of sugar. (Sanders L J, 2002).

Claude Bernard, in 1855, performed an experiment in which he had observed the amounts of sugar present in the liver. He had examined the level of sugar in a liver and then compared it to another liver in which he had left for a day. It was noted that the second liver had a higher sugar content hence there was a definite reaction occurring that had been resulting in the

formation of sugar in the liver. (Bernard C, in L Clendening, 1942). He then later discovered in 1857 that a starch-like substance was secreted by the liver. This substance, which he had termed glycogen, (Ahmed A M, 2002) was defined by him to be an internal secretion. (Welbourn R B, in W F Bynum & R Porter, 1993).

In 1869, Paul Langerhans identified what we now know as the Islets of Langerhans albeit he had not know their function until in 1893 when it was found that they produced a secretion (Sanders, L J 2002). Minkowski, by the end of the 19th Century had found that removing the pancreas from a dog would make it display the symptoms of diabetes. He then further experimented on the dogs by reinserting the pancreas into the dogs which in turn prevented diabetes (Welbourn R B, in W F Bynum & R Porter 1993).

52 years later, in 1921, Frederick Banting and Charles Best managed to find the use for the internal secretions (Canadian Diabetes Association, 2005).

Banting and Best's work was most likely the turning point in history for the treatment of diabetes. It was only after their successful discovery that effective treatments for diabetes were developed. Prior to the discovery of insulin, various and less effective methods of treating diabetes were used. There were also very limited methods of diagnosing diabetes. In the past, the physician would generally just taste the urine sample of the patient and check for the presence of sweetness but nowadays, other methods such as blood tests, as well as tests for the level of sugar in the urine are used instead. This also meant that the limited understanding of the disease generally made treatment for the disease hard to find.

Firstly, there were Hippocratic treatments for diabetes. Hippocratic treatments, albeit usually being popular, were recognised to actually do the patient harm. It was only logical that a person who was suffering from weight loss would not benefit from excess blood loss for example. There were also quite a few drugs that were used later in time; approximately in the late 19th Century. These drugs included opium, which was primarily used to relieve pain rather than treat diabetes and also bichloride of mercury (Hardy S, 2005).

Another treatment of diabetes was invented by Bouchardat, a French physician, who noticed that during the Siege of Paris in the 1870s, the forced rationing of food made some diabetics cope better with the disease. He then suggested specialised diets in an attempt to treat diabetes. The results of the treatment were not spectacular but did occasionally improve the life expectancy of the diabetics. However, it was difficult to make patients stay on treatment plan due to the repetitive nature of the treatment. This was a problem especially for children. (Hardy S, 2005). Bouchardat also had noticed that exercise was somewhat beneficial in the treatment of diabetes due to the improvement in the usage of carbohydrates (Rakobowchuk M, 2003).

Although Banting and Best had been the first to actually find an effective treatment for diabetes, it must be noted that a German by the name of Georg Zuelzer had actually been the person to develop the first pancreatic extract that had reduced the effects of diabetes. However, negative side effects such as convulsions were noted in his results and it was believed it

was due to the toxic nature of the treatment. It should be noted that it was actually not the treatment of the disease that was causing the convulsions but rather the effects of hypoglycaemia . Nevertheless, this had dissuaded him from pursuing any further research into the extract (Rakobowchuk M, 2003).

As noted earlier in this report, Banting and Best had managed to find the use for the pancreatic extracts. They performed primary on dogs and what they had done was ligate their pancreatic ducts which resulted in the formation of the islets cells which were used to extract the internal secretions which was then used back on dogs and shown to reduce their blood sugar levels (Rakobowchuk M, 2003). In a heart warming portrayal of scientific discovery, they injected the extract into a 14 year old diabetic patient. He condition was said to have dramatically improved. The patient was given daily doses of the extract and twelve days later, he had showed a dramatic improvement in his condition (Allan F Nm 1972).

Diabetes was a high profile disease. This was proven by the fact that in 1923, Banting, Best AND Macleod had been awarded the Nobel Prize in Medicine; only two years after their discovery. Although it was a high profile disease, it should also be noted that the first actual treatment developed by Banting and Best was viewed rather with scepticism due to the past failings of Zuelzer's extract (Rakobowchuk M, 2003) although that view changed when the treatment was shown to work. There was also a race going on to find an effective treatment prior to Banting and Best's discovery which further enhanced the view that diabetes was a high profile disease. It also

raises the issue of whether it was ethically correct that research was done due to monetary reasons rather than what it should be done for; the benefit of humanity. Consequently, rewards (and actual results) would improve the view towards research projects within the community hence a further increase in the number of projects would occur.

On a side-note, As quoted in the BSSM lecture, Banting commented that “ the treatment might look like a magic bullet, but if the way of life changes, it will cause increasing problems” which meant that there was a possibility that overuse of the treatment may lead to other problems within society and there was also a rumour that there was a belief in eugenics in the sense that finding this treatment would now result in the “ contamination” of the human race with this disease rather than diabetics dying out and improving society as a whole.

All in all, Diabetes had been one of the major problems plaguing mankind and the study of the development in the understanding of the disease as well as the consequent treatments that have been found due to the increase in scientific knowledge show us that with understanding, it may be possible to find a cure for a wide variety of diseases.