Management Of Type 2 Diabetes

Diabetes in males and females

As an individual's weight increases, the likelihood of developing diabetes also increases. This is supported by a study showing that men are more likely to develop diabetes at a lower body mass index (BMI) when compared to women (National Health Service, 2011). In this study, 95,057 records of patients in Scotland with type 2 diabetes were analysed and a trend between BMI and gender was found. It was found that men of similar age to women developed type 2 diabetes at a lower BMI than women. The exact reason for this outcome was not identified, however, a possible theory suggested that men are less sensitive to insulin than women (Logue et al., 2011). This means that a larger amount of insulin is required to lower blood glucose levels. Research that took place in 2009 shows that around 2.4% of males in England have diabetes compared to 1.2% of females, all between the age of 35 and 44. Of those aged between 45 and 54, 6% of males had diabetes compared to only 3.6% of females (Diabetes UK, 2009).

Studies carried out in the northern and southern parts of India show contradicting results. Some conclude that men have a higher risk of developing type 2 diabetes (southern) whereas some say females have the higher risk (northern). But some show there to be no difference between the two genders. The suggested reasoning as to why females are at a higher risk in the north is due to old cultural beliefs that a family needs a male child to carry their name forward. This leads to less attention given to those females that have type 2 diabetes, resulting in missed treatment and lack of family support (Gutch et al., 2014). The main point here is that they may never receive medication in the first place.

Diabetes in different age groups

Type 2 diabetes is increasing at a large rate and is most commonly found in people over the age of 40. However, it is becoming increasingly common in younger individuals as the rate of obesity is also rising (Oldroyd et al., 2005). Obesity increases the risk of developing diabetes as insulin resistance increases with larger body weight. The number of substances involved in insulin resistance are increased with obesity such as glycerol, proinflammatory markers and cytokines. An increase in these substances means that the body's cells are less able to utilise insulin effectively to reduce blood glucose levels, ultimately leading to the development of type 2 diabetes (Al-Goblan, Al-Alfi and Khan, 2014).

There is also an increasing rate of type 2 diabetes in India and it is estimated that 8.7% of the diabetic population are between the ages of 20 and 70. This is due to a number of factors including genetic factors, diet, increasing life expectancy and sedentary lifestyles (World Health Organisation India, 2018). Diet and sedentary lifestyles are both factors that contribute to obesity and being overweight, which in themselves increase the risk of developing diabetes. A study that took place in India, took into account 11,216 patients with diabetes and showed that there was a clear trend between increasing age and diabetes (Ramachandran et al., 2001).

The prevalence of type 2 diabetes also increases with age in White individuals. However, the

onset is at a younger age in South Asians – around 10 years (Diabetes UK, 2014a). This younger-onset means that young adults have to be treated earlier on, to manage their symptoms. This may be in the form of medication or lifestyle advice (depending on the severity). For example, taking part in regular exercise helps to keep blood glucose levels low, as well as a balanced diet. For younger patients, the potential side effects of medication, such as metformin, may deter them from adhering to the course of treatment. Potential side effects include diarrhoea, weight loss or weight gain, all of which could have a major impact on the patient's day to day life (National Health Service, 2017).

Susceptibility to diabetes amongst different ethnicities

Type 2 diabetes in South Asian individuals is up to six times more common than in those of white ethnicity. After collecting and analysing the data of 19,469 patients aged 20 to 60, it was concluded that those of South Asian ethnicity are more susceptible to type 2 diabetes (Diabetes UK, 2014b). Genetic factors and increasing weight are the main reasons for this. Genetically, South Asians have increased insulin resistance when compared to White individuals. They also have increased visceral adiposity – when fat is stored around important organs including the liver and pancreas. This further increases insulin resistance (Shah and Kanaya, 2014).

The prevalence of diabetes in various South Asian countries was investigated and it was found that in India the prevalence was 12.5%, in Sri Lanka 10.3%, in Nepal 9.5%, in Bangladesh 8.5% and in Pakistan 7.2% (Jayawardena et al., 2012). These percentages are significantly higher when compared to White people living in the UK, as the prevalence is just 1.7% (Oldroyd et al., 2005). Management of diabetes is also much lower in South Asian countries, which has a negative impact on the health of these patients. There are many reasons for this including economic factors, awareness of the condition and the use of herbal medicines.

Economic factors affecting the treatment of diabetes

Various economic factors can affect the availability of medication to the public as well as patient awareness of the condition. This results in diabetic patients not receiving the required healthcare necessary to control their diabetes, or simply not knowing that they have the condition in the first place. A study that took place in Bangladesh, took into account 7786 patients that were aged 35 and older. A range of parameters was tested such as blood glucose levels, awareness, treatment and control of the condition. In addition to these tests, the economic status of the patients was evaluated; whether they came from poor or wealthy

households. It was found that only 18.2% that came from a poor household were aware that they had diabetes compared to 63.2% from wealthy households. 15.8% from poor households were undergoing treatment as opposed to 56.6% from wealthy households. Finally, it was found that 8.2% of poor households were controlling their diabetes, whereas 18.4% were controlling it from wealthy households. The suggested reasoning behind these major differences was that those who were less educated or less economically developed were more likely to be unaware of their condition. This also resulted in them not controlling their diabetes with medication as they could not afford the treatment (Rahman et al., 2015).

A study was carried out in the UK on children around the age of 10, in which each parent's employability status and economic situation was taken into account. This was done using the

National Statistics Socio-Economic Classification (NS-SEC). Various tests were carried out and compared back to this. The results of White children showed that, when parents were in the lower band of socio-economic position, higher insulin resistance and fat levels were found in the children (Thomas et al., 2012). This shows that the risk of these children developing type 2 diabetes is greater than in those from a higher economic background. This then leads on to the issue of not being able to afford the treatment required, therefore ignoring the need to take medication to control their diabetes.

Role of condition awareness and carers in the management of diabetes

A large proportion of elderly patients with type 2 diabetes in the UK require carers to support them, whether it be administering medication, or assisting them with their daily activities. Out of a surveyed 98 patients (aged 59 and over) with type 2 diabetes, 89 received daily help from carers. Research showed that both patient and carer knowledge of diabetes was low, with 40% of carers claiming they had not received information on diabetes from a professional body and how they should go about managing it (Sinclair, 2010). This lack of

carer knowledge can ultimately affect the patient's management of diabetes and their use of medicines. For example, if a patient dislikes taking a specific medication due to unpleasant taste or side effects and neither patient nor carer are aware of its importance, the carer may allow the patient to not take the medication. Due to lack of knowledge, they may not be aware of severe consequences that may arise from this.

Awareness of type 2 diabetes is very low in India, especially when comparing rural areas to urban areas. Amongst the general population 56.3% were aware of preventative measures that could be taken to reduce the risk of developing diabetes. Whereas 63.4% of the diabetic population were aware of these. From the study sample, only 43.2% were even aware that there was a condition called diabetes (Joshi, 2015). This shows that in South Asian countries, the general public should be educated on diabetes, especially as it is affecting them on a larger scale when compared to other countries. Not being aware of the condition would have a large impact on the way medicines are used by patients. They may choose not to take them as they may be unaware what they are taking them for.

When comparing those living in South Asian countries to White patients in the UK, it can be concluded that there is an overall shortage of knowledge of type 2 diabetes. This is likely to cause harm to the patients as they are unaware of the management options available to them as well as the importance of concordant medicine use.

The use of traditional herbal remedies

Traditional herbal remedies are widely used throughout many South Asian countries to manage and treat diabetes. In countries such as India, there are many plants that are thought to have anti-diabetic properties. These plants are very widely available, as out of the 45,000 plant species present in India, there are several thousand that can be used medicinally (Grover, Yadav and Vats, 2002). Alongside this, out of the 21,000 plants thought to have medicinal properties, 2500 species are found in India alone (Umashanker and

Shruti, 2011). This large availability is one of the many reasons as to why traditional herbal remedies are used all across India as opposed to prescribed medication. Also, herbal remedies can be bought at a much lower cost than other medication, which is ideal for less economically developed countries such as India. This allows more of the population to have access to treatment for their diabetes. Another reason why individuals prefer using herbal remedies is the lack of side effects. The side effects that come with prescribed medication deters a large number of patients, which is why they decide to use herbal remedies instead. Some of the herbal plants used include: aloe vera, garlic, onion, fenugreek, rennet, java plum, heart-leaved moon seed and black mustard seed (Modak et al., 2007). A study was carried out to determine if aloe vera juice had any effect on diabetes. Patients were given one tablespoon of aloe vera juice twice a day for 42 days. Blood glucose levels were recorded every two weeks and the results showed that after just one week of aloe vera juice, blood glucose levels in the patients had dropped. As the weeks commenced, glucose levels continued to drop steadily, compared to the control group that were not given the aloe vera juice (Yongchaiyudha et al., 1996).

The use of herbal remedies in the UK is a lot lower than in South Asian countries mainly due to the fact that prescribed medication is the main source of treatment that most people go about using. A wide array of medical exemptions also makes it easier for certain groups of patients to access this medication for free. In most cases this is enough for patients to adhere to medication prescribed by their general practitioner. Some GP’s may advise against herbal medication as there is not sufficient evidence proving they are safe for diabetic patients. In some cases, these medicines are not tested at all (Diabetes UK, n.d.). In addition, it is not recommended that a patient takes herbal medicine in place of their current prescribed medication as the therapeutic effects may be unknown, whereas prescribed medication has been thoroughly tested.

Conclusion

Overall, there are many socio-economic factors that affect the use of medicines in patients with type 2 diabetes, ranging from gender and age to ethnicity and awareness of the condition. Each factor in its own unique way contributes to the need for specific, tailored treatment for the patient. This can be achieved by educating patients, as well as the general public, on how to manage and treat type 2 diabetes and the importance of doing so correctly. The differences between those in South Asian countries and White people in the UK show just how much attention should be payed to each, to allow for equal treatment to be attained.