Diabetes

Diabetes mellitus is a chronic condition that arises when the pancreas does not produce enough insulin (type 1 diabetes), or when the body cannot effectively use the insulin produced (type 2 diabetes). Both genetic and environmental influences appear to be important in the development of diabetes. For type 1 diabetes, the cause remains largely unknown. For type 2 diabetes, being overweight or obese, together with physical inactivity and a high-fat, high-energy dense diet are believed to be the major factors for the cause of the condition. Although there is no evidence as yet that type 1 diabetes is preventable, it is clear that addressing weight loss, physical activity and diet can delay or prevent the onset of type 2 diabetes.

Type 2 diabetes is fast becoming a world epidemic. The burden of complications and premature mortality that accompanies the diabetes epidemic will stretch the resources of most countries. If action is not taken to stem the tide of type 2 diabetes, the prospects for world health are bleak.

Obesity

Obesity specifically refers to an excess amount of body fat sufficient enough to harm health. Although obesity can affect anyone, the main risk factors are a high-fat, high-energy dense diet and physical inactivity. Obesity is most commonly assessed by a single measure, the Body Mass Index (BMI). Individuals with a BMI between 25 to 29.9 (kg/m^2) are considered overweight, while those with a BMI of 30 and above are considered obese. The risk of serious health consequences such as type 2 diabetes, coronary heart disease, some forms of cancer and a wide range of other conditions increases with BMI.

An alarming rise in overweight and obesity is occurring worldwide. These rising levels are likely to drive the prevalence of type 2 diabetes even higher than present forecasts, which do not take into account changes in the obesity epidemic.

The Link between Type 2 Diabetes and Obesity

In both men and women, the more overweight an individual is, the greater the risk of developing type 2 diabetes. People with abdominal obesity have an amplified risk of developing the condition. The means by which excessive body fat causes type 2 diabetes is not clearly defined, but it appears that excess fat increases insulin resistance, raising blood glucose levels and the likelihood of developing diabetes.

The rise in type 2 diabetes appears to be mainly related to the increasing prevalence of overweight and obese individuals worldwide. Children who are overweight are more likely to become overweight or obese adults when they grow up. However, weight gain during early adulthood for both men and women is seen as the greatest risk for type 2 diabetes. Research has shown that modest weight loss can prevent or delay the development of type 2 diabetes in high risk individuals.

Reducing the Risks

The importance of a eating a low-fat, low-energy dense diet and participating in physical activity should be greatly promoted in order to reduce the risks of becoming overweight and obese. If these behaviours are established in individuals when young, there is a greater chance that they will continue in adulthood. Type 2 diabetes and obesity share such similar risk factors that any effort to reduce the risk of obesity relates also to decreasing the risk of developing type 2 diabetes.

Effective public health programmes should stress the importance of a healthy environment, promoting improved diet and activity throughout communities, which may contribute towards helping to prevent obesity and decreasing the number who develop type 2 diabetes.

Treatment

Weight management and physical activity are the basis of the treatment of type 2 diabetes. In those individuals with a high risk of developing type 2 diabetes, small amounts of weight loss are enough to significantly reduce this risk. There are several types of diets available for weight loss, ranging from very low-energy diets to low-carbohydrate diets, although diet combined with group therapy leads to better success than diet alone. Increasing daily physical activity does not significantly affect the rate of weight loss in the early stages, but it plays an important role in weight maintenance.

Drugs to assist weight loss play a role in individuals for whom lifestyle changes alone may be either insufficient

to produce the required weight reduction or are impossible to achieve because of physical incapacity. These drugs can be classified into three categories - those that shift nutrient metabolism, those that reduce food intake and those that increase energy expenditure.

Drugs such as orlistat and sibutramine can contribute to achieving sustained weight loss and it has been shown that orlistat can reduce the risk of developing type 2 diabetes.

The Way Forward

It is possible to take action to slow the increasing epidemics of obesity and diabetes. However, only with all embracing strategies focusing on prevention and education at every level can this be achieved. Such strategies need to focus both on children and adults. For the former, it is important to create an environment at school and in the home in which children can enjoy safe, active play and in which they can move about freely and safely on foot and by bicycle. Healthy dietary patterns need to be encouraged from early life. For adults, a healthy diet is also important and food labelling, appropriate pricing and health promotion are some of the means by which this can be encouraged. Physical activity can be increased by participation in sports and other leisure time activities, but its incorporation into day-to-day routines such as transport to work is also vital. Many of these actions require changes on a community-wide basis.

A definitive global strategy is needed to transform diets and encourage more physical activity to halt the dramatic rise of obesity and type 2 diabetes worldwide and the ever-increasing burden on healthcare resources. There can be no doubt that now is the time to act.