A new focus on type 1 diabetes?

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In recent years, it seems that most of the new therapies and developments in diabetes have been in type 2 diabetes, with developments in the treatment of type 1 diabetes being less prominent. However, new research in type 1 diabetes has recently been reported.

A team of researchers from the University of California, Los Angeles (UCLA) may have discovered a mechanism that develops pancreatic cells into insulin-producing beta-cells, which could eliminate the need for individuals with type 1 diabetes to inject insulin (Dhawan et al, 2011). It has long been widely assumed that the ultimate identity of most cell types is set from the moment of their development; however, recent investigations (e.g. Vierbuchen et al, 2010) have shown that cells in many areas throughout the body may be able to alter their function. In light of this, the researchers reported that it may be possible to "flip a chemical switch" that would alter the DNA structure of pancreatic cells and coax them into beta-cell development.

The development of techniques targeting this potential mechanism to produce functioning beta-cells may take many years, but it could eventually lead to less dependency on insulin injections among millions of people with type 1 diabetes.

Research funded by Diabetes UK and supported by the Juvenile Diabetes Research Foundation has successfully shown the potential of an "artificial pancreas" to prevent night-time hypoglycaemia in adults with type 1 diabetes (Diabetes UK, 2011). The artificial pancreas, or closed-loop insulin delivery system, automatically regulates blood glucose levels by releasing insulin when alerted to high levels of glucose, and withholding it when levels are low. Two small studies (Hovorka et al, 2011) carried out at the University of Cambridge have shown a 22% improvement in the time participants kept their blood glucose levels in a safe range and a 50% reduction in the time they spent with low blood glucose levels, thus reducing the risk of both short- and long-term complications.

On a different note, all of us working in diabetes care are aware that eating disorders are an issue in both type 1 and 2 diabetes. Although not yet officially recognised as a medical condition, "diabulimia" is a serious and emerging problem. Experts predict that as many as one-third of young females with diabetes could be suffering from this condition.

Diabulimia is a term created to represent a condition of diabetic bulimia. In the USA, the phenomenon is well known, and even recognised by the American Diabetes Association. This disorder is discussed by O'Brien et al in this month's supplement (page 185).

Insulin omission is often seen in young girls with type 1 diabetes with the intention of losing weight (McCullough, 2011). Young people with diabetes, who already have numerous issues to deal with, realise the potential weight loss that is possible by skipping insulin, without understanding how much they are damaging their bodies. Unfortunately, the only treatment available in this situation is psychological care and close monitoring. Early prevention is key to avoiding long-term complications.

Sadly, this is not a new phenomenon. When I was diagnosed with type 1 diabetes 38 years ago, I met two girls of a similar age to me who had diabetes. They are no longer alive because their weight was more important than their health. Both died of renal failure.

Research is crucial to any medical condition in order to improve the lives of people with the condition but also to look for ways to prevent it occurring in the first place. People with diabetes long for the day when a cure is found. ■

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