Adopting a different approach to dietary advice within general practice

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Clinicians often offer people who are newly diagnosed with type 2 diabetes a 3-month trial of lifestyle modification to lower their blood glucose into the normal range before initiating drug therapy. If lifestyle modification works to lower their blood glucose, it is hugely motivating for the patient. However, in many cases it fails, and drug therapy is initiated – but what message does this convey? I worry that it might imply lifestyle modification, dietary changes in particular, has minimal impact on blood glucose and is inferior to pharmacological intervention. A comprehensive understanding of the available anti-diabetes medicines is essential for all prescribers, but with so much focus on drug therapies in recent years, have we lost sight of the potential benefit of lifestyle modification in the management of type 2 diabetes – at diagnosis and beyond?

To encourage discussion about diet and lifestyle modification, in 2013, the Quality and Outcomes Framework (QOF) introduced a dietary-related indicator for the provision of dietary advice for people with diabetes (DM013; Department of Health, 2013). The indicator measured the percentage of people with diabetes, on the register, who had a record of a dietary review by a suitably competent professional in the preceding 12 months. It was worth just three QOF points, and the upper threshold was 90%. A "suitably competent professional" was not clearly defined, and I recall many colleagues at the time asking what constituted dietary advice. To my knowledge, few GPs and practice nurses undertake training in dietetics or nutrition. It all seemed rather vague; however, this particular QOF indicator was "retired" a year later.

The NICE (2015) guideline on the management of type 2 diabetes makes only brief mention of diet, suggesting we, "Integrate dietary advice with a personalised diabetes management plan, including other aspects of lifestyle modification, such as increasing physical activity and losing weight" and "…if HbA_{1c} levels are not adequately controlled by a single drug and rise to 58 mmol/mol (7.5%) or higher: reinforce advice about diet, lifestyle and adherence to drug treatment". It recommends that individualised and ongoing nutritional advice is provided by a healthcare professional, which NICE defines as someone with specific expertise and competencies in nutrition, which may include, but is not limited to, a registered dietitian, and may be delivered on an individual basis or as part of a structured educational programme.

The guideline emphasises that dietary advice for people with diabetes should centre on the same balanced diet applicable to the general population: to consume high-fibre, low-glycaemic-index sources of carbohydrates (e.g. fruit, vegetables, wholegrains and pulses), low-fat dairy products and oily fish; and to control the intake of foods containing saturated and trans-fatty acids. This advice should be offered alongside other aspects of lifestyle modification, such as increasing physical activity and losing weight, with an initial weight loss target of 5–10% for those who are overweight. The NICE (2015) guidance also states that lifestyle advice should be offered throughout the treatment pathway. The use of foods marketed specifically for people with diabetes is not recommended.

Although NICE provides some dietary guidance for people with diabetes, where can we go for continuingly up-to-date evidence-based information?

Diabetes UK (2017) offers advice on a healthy balanced diet, gives guidance on understanding food labels and suggests recipes online. Like NICE, their advice is based around national guidance, illustrated by the Eatwell Guide (Public Health England, 2016). This guide suggests that at least one-third of our food intake should be based on starchy carbohydrate (albeit the whole grain or higher fibre versions with less added fat, salt and sugar), and we should strive to eat at least five portions of a variety of fruit and vegetables a day.

We are encouraged to cut back on saturated fat, choose lower fat and lower sugar dairy products, consume more beans, pulses and sustainably sourced fish and eat less red and processed meat.

Are current national dietary guidelines appropriate for people with diabetes?

Reducing saturated fat has been a key component of healthy eating advice for decades and is largely underpinned by the "diet-heart hypothesis". First proposed in the 1950s by Ancel Keys, an American researcher and physician who suggested that saturated fats were a major cause of cardiovascular disease. Many are now questioning the validity of Ancel Key's claims, and his work has been heavily criticised (Leslie, 2016). The impact of dietary saturated fats on a person's lipid profile is a complex issue. There are many other factors that contribute to increased cardiovascular risk, such as obesity, smoking and a sedentary lifestyle, which makes it difficult to prove that raised LDL-cholesterol is an independent risk factor for cardiovascular disease. Also, even where there appears to be an association of risk, this does not mean it is the cause of the disease.

What we do know, however, is that as fat consumption fell in the mid-eighties, our consumption of carbohydrate rose and so too obesity rates (Popkin et al, 2012), which begs the question, "If everything we eat is fat-free why are we still so fat (or arguably even fatter)?"

What can we do in practice?

I have never really felt that the dietary advice I gave to my patients at their review led to noticeably improved outcomes in terms of glycaemic control or weight loss, and so I always found it a rather frustrating element of my job. Last year, I began thinking about how I could do things differently and started exploring alterative dietary approaches. Intermittent fasting and the 5:2 diet caught my eye. I've never seriously dieted in my life – but if you told me I couldn't have chocolate (which I don't have often anyway), suddenly I would start to crave chocolate! Following the intermittent fasting approach, if I was told that I had to limit my chocolate intake to certain days, or that I had to reduce my calorie intake to around half of what it is usually for a few days a week, that might feel more manageable. I read *The Fast Diet* (based on intermittent fasting) by Dr Michael Mosley and Mimi Spencer (2014) and the science behind the approach made a lot of sense to me. It is not a diet aimed at people with diabetes but whilst writing the book, Dr Mosley himself discovered that he had type 2 diabetes. He went on the 5:2 diet and within 12 weeks he had lost 20 lbs in weight and his blood glucose and cholesterol had returned to normal levels. This prompted him to explore, in greater detail, the link between calories, carbohydrates, obesity, insulin and diabetes, resulting in *The 8-Week Blood Sugar Diet* (Mosley, 2015). This diet is based on a Mediterranean style of eating – reducing refined and starchy carbohydrates, like bread, potatoes, processed cereals, rice and pasta, and switching to whole grains, beans and lentils. Fats, such as olive oil, full-fat yogurt, cheese, avocados and coconut milk, are encouraged. Even though gram for gram they are higher in calories than carbohydrates, they are higher satiating foods and help to slow down the breakdown of starchy carbohydrates into glucose.

Low-calorie diets

The approach described in *The 8-Week Blood Sugar Diet* is based on the work of Professor Roy Taylor at Newcastle University. It has become widely accepted that type 2 diabetes is a life-long condition, with irreversible and progressive beta-cell damage. However, within days of bariatric surgery (prior to any weight loss), normal glucose metabolism is restored in the majority of people with type 2 diabetes, which challenges the accepted dogma. Professor Taylor investigated the basic mechanisms that lead to type 2 diabetes and discovered that too much fat within the liver and pancreas prevented normal insulin action and normal insulin secretion (Taylor, 2013). If a person consistently eats too much food, fat accumulates in the liver. In particular, excess carbohydrates are converted into fat (in a process called "de novo lipogenesis"), which contributes to insulin resistance in the muscles and tissues, and also in the liver. This reduces insulin's suppressing effect on glucose production in the liver, so the liver produces and releases more glucose into the blood and this, in turn, raises insulin levels. The

Quick guide

- Intermittent fasting: A term for an eating pattern that cycles between periods of fasting and eating.
- 5:2 diet: Eating as normal for 5 days a week, and on 2 non-consecutive days, reducing calorie intake to around 600 calories.

elevated insulin levels further promote fat storage in the liver creating a positively reinforcing cycle, which is sometimes referred to as the "twin-cycle hypothesis".

Fat also accumulates in the pancreas where it impairs the ability of the pancreatic beta-cells to release insulin. The insulin-secreting function of the pancreas decreases once the fat levels exceed a person's specific fat threshold, something that was shown to vary from one individual to another and correlated strongly with genetic predisposition (Taylor, 2013).

Taking this into account, a small study was conducted trialling a very-low-calorie diet among people with type 2 diabetes. All of the 11 patients in the initial study reversed their diabetes by drastically cutting their food intake to 600 calories a day (consisting of liquid diet drinks plus 200 calories of non-starchy vegetables) for 2 months (Lim et al, 2011). Three months later, seven remained free of diabetes. Not surprisingly, these findings made headline news. It is important to remember that the study included a small number of motivated individuals, offered intensive support over a short period of time. The crucial questions are whether a similar approach could work in, or be adapted for, general practice where providing that level of support is impossible, and whether such radical dietary change is sustainable or indeed safe in the longer term.

In October 2013, Diabetes UK awarded Newcastle University and the University of Glasgow its largest ever research grant to study the long-term effects of very-low-calorie diets in people with type 2 diabetes over a 5-year period. A primary objective of the continuing research and associated study (DiRECT [Diabetes Remission Clinical Trial]; Leslie et al, 2016) is to determine whether such an approach is feasible on a larger scale in a general practice population.

Final thoughts

While we wait for long-term data, the short-term data and anecdotal reports of the benefits of the low-carbohydrate diet cannot be ignored. I think The 8-Week Blood Sugar Diet encompasses reliable scientific principles and is an approach that is realistic, achievable, sustainable and possible to incorporate into our diabetes consultations. Since reading *The 8-Week Blood Sugar Diet* book, I have discussed this approach with many of my patients and have become more focused in the dietary advice I give. Of course, such a diet will not work for everyone, but in those who feel ready and motivated to make changes, I believe it can work. It is early days for me, but one patient who comes to mind is a 72-year old lady who was diagnosed with type 2 diabetes 5 years ago. She struggled to accept the diagnosis and felt stigmatised about the perceived association of being overweight and developing diabetes. I talked to her about the 8-Week Blood Sugar Diet and I think what appealed to her was the potential to reverse what she had believed was an irreversible and progressive condition. Having battled to lose weight for decades, within 4 weeks she had lost 5 kg in weight and her blood glucose levels had dropped into single figures. What really struck me about this lady was her whole demeanour – she looked more vibrant, she was smiling and happy and confident. She told me that she had never felt better, and she was so much more energetic and optimistic about every aspect of her life. We haven't stopped her medication yet, but that is her ultimate goal. I have been hugely encouraged by the willingness of my patients to try this new approach and look forward to reporting positive outcomes in the future. ■

Have you tried, or are you considering, the low-carbohydrate diet in your practice? Get in touch at **dpc@omniamed.com.**

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