



Welcome

Welcome to the twenty-fourth issue of Type 2 and You. In this issue we look at the types of treatment of Type 2 diabetes, developments in the treatment of diabetic retinopathy, as well as Type 2 diabetes and hypoglycaemia. We also announce the winners of the first IDDT Lottery draws and the winner of the Pomegreat competition. There is also a reminder of the date of our Annual General Meeting.

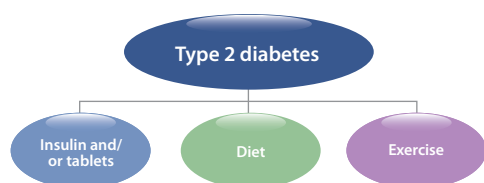


Types of Treatment for People with Type 2 Diabetes

The aim of this article is to try and give people with Type 2 diabetes an understanding of the different types of treatment and medication they may be given, how these medications work, some of their side effects and how the medications can be used together to control blood glucose levels.

People with Type 2 diabetes often produce insulin but either they do not produce enough or it is not used properly by the body (this is called insulin resistance). This means that the body cannot control blood sugar levels properly and blood sugar levels rise.

The treatment for people who are diagnosed with Type 2 diabetes consists of a combination of three elements:



Sometimes Type 2 diabetes can be treated with diet and exercise alone, sometimes with the addition of tablets and if this is still fails to reduce blood sugar levels sufficiently then treatment with injections of insulin is necessary. On average, people with Type 2 diabetes will need to start taking insulin seven years after diagnosis. It is a combination of these three elements that is used to achieve target blood sugar levels to reduce the risk of complications.

Diet and Exercise alone

When people are first diagnosed it may be that a combination of a carbohydrate-controlled diet, together with exercise, will have the desired effect of lowering blood sugar levels. However, this may not be appropriate for everyone, for example, those who are not able to take exercise due to other health problems, so other medications have to be used.

Drugs used to treat Type 2 diabetes

There are a range of drugs that are used to treat Type 2 diabetes and these should be used alongside diet and exercise wherever possible. There are four main groups of drugs commonly used and they work in different ways.

Biguanides (Metformin/Glucophage) – this reduces insulin resistance, which means that it improves the body's ability to use the insulin that

is still being produced. Because it does not increase the amount of insulin the body is producing, it does not cause low blood sugar levels (hypoglycaemia or "hypos"). Its main side-effect is stomach upsets. If metformin on its own does not control blood sugar levels, then another drug may be added from the range known as sulfonylureas.

Sulfonylureas (Glibenclamide, Gliclazide/Diamicon, Glimepiride/Amaryl, Glipizide/Minodiab, Tolbutamide) – these drugs increase the amount of insulin the body produces. This means that they have the effect of lowering blood sugar levels and can cause hypos. Their side effects can also be stomach upsets and skin reactions.

Glitazones (Pioglitazone/Actos) – these can also be added to the treatment regime. These drugs work by reducing insulin resistance in fat tissue, muscles and the liver. There has been some recent research that shows that they can cause fluid retention, heart and liver problem and increase the risk of osteoporosis. Some doctors are no longer prescribing them and you should discuss these drugs with your doctor if you are taking them. They can cause hypos.

DPP-4 Inhibitors (Saxagliptin/Onglza, Alogliptin/Vipidia, Linagliptin/Trajenta, Sitagliptin/Januvia, Vildagliptin/Galvus) – these work by slowing down the breakdown of incretin hormones, resulting in increased insulin production at mealtime and slowing down the production of glucose in the liver. They can also cause hypos and side effects include upper respiratory tract infections, headaches and abdominal pain.

There are other newer drugs that can be used to treat Type 2 diabetes, such as Exanatide/Byetta/Bydureon, Liraglutide/Victosa and Lixisenatide/Lyxumia. These are injected but they should not be confused with insulin. They work in several ways; they stimulate the body to make insulin, they slow down the rate at which glucose passes from the gut into the bloodstream, they cause cells in the body to remove glucose from the blood and finally they act on the brain to produce a feeling of fullness that reduces appetite and therefore food intake. They are used together with tablets and because they lower blood sugar levels they can cause hypos. Different people can experience different side effects but the most common are stomach upsets.

Adding in Insulin

If these medicines still don't control blood sugar levels well enough then the doctor may prescribe insulin. There are lots of different insulin regimes and different types of insulin but people usually start with an intermediate or long-acting insulin, taken at bedtime or twice daily, according to individual need. Intermediate and long-acting insulin works in the background all the time. It may be necessary to also add in a short acting insulin that is given at mealtimes. All insulins work to reduce blood sugar levels and so can also cause hypos.

However it is important to remember that if/when a person starts to take insulin they do not become a person with Type 1 diabetes, they become a person with Type 2 diabetes who takes insulin!

NEW

Several new insulins have come to the market recently; three high strength insulins which have concentrations greater than the previously standard strength of U100 and biosimilar insulin.

The Trustees of IDDT have discussed the introduction of different strengths of insulin in depth and strongly expressed their concerns about the risks of errors by people with diabetes, health professionals and hospitals. These concerns come from their experiences of the introduction of the first genetically modified human insulin in the 1980s when there was a dearth of evidence of benefit and many people with diabetes were not informed of the differences from their previous natural animal insulin.

These new stronger insulins have been largely developed for people who require large doses of insulin to reduce the volume injected and the number of injections.

high strength insulins

New term – the ‘dose step’

The ‘dose step’ is a new term to define how to dial up the required dose on the prefilled pen.

For Lantus, Toujeo and both strengths of Humalog:

- one dose step on the prefilled pen is equivalent to one unit of insulin.

In contrast, for Tresiba:

- one dose step on the U100 pen is equivalent to one unit of Tresiba
- one dose step on the U 200 pen is equivalent to 2 units of Tresiba.

Dose conversion when switching between standard and high strength insulin products

For all the insulin products in the table below, the required dose is displayed in the dose counter window of the prefilled pen.

For Humalog 100 and 200 units/mL KwikPens, and for Tresiba 100 and 200 units/mL FlexTouch pens so there is no need for dose conversion when transferring patients from the standard to high strength version or vice versa.

However, Toujeo is not bioequivalent to Lantus so dose adjustment is needed when patients are switched from Lantus or other basal insulins to Toujeo or vice versa.

Here are the details of the new insulins:

Key feature	Active substance	Brand name	Strengths	Injection device
High strength	Insulin degludec	Tresiba	U100: U200	FlexTouch prefilled pen
	Insulin	Humalog	U100: U200	KwikPen prefilled pen
	Insulin glargine	Lantus	U100	SoloStar
		Toujeo	U300	
Fixed combination	Insulin degludec & liraglutide	Xultophy	Degludec and 3.6mg/mL of liraglutide (Victoza)	Prefilled pen
Biosimilar	Insulin glargine	Abasaglar	U100	Lilly reusable pen

If you are being changed to a different strength insulin, the MHRA advice to health professionals is worth noting.

Before starting treatment with a high strength, fixed combination or biosimilar insulin:

- consult the summary of product characteristics and any educational material,
- ensure that patients read and understand the patient leaflet and any patient education material,
- ensure that patients receive appropriate training on the correct use of the product,
- give patients a patient booklet and Insulin Passport (or safety card),
- warn patients only to use insulin as they have been trained because using it any other way may result in a dangerous overdose or underdose.

Their advice to people with diabetes is obvious - monitor glucose levels closely after starting a new treatment and in the following weeks. You may need to adjust doses and timing of concurrent rapid acting or short acting insulin products and other antidiabetic treatments.

The European Medicines Agency is consulting on safety advice and the MHRA in the UK has stated that it is important that patients and health professionals are aware of the different strengths and how to use them to minimise the risk of medication errors, such as the wrong dose of insulin being injected.

Diabetic Retinopathy



It's a scary thought that, according to IDF, diabetes affects around 382 million people worldwide and by 2035 is projected to increase to some 600 million. Diabetic retinopathy and macular oedema are both serious complications of diabetes which can impair vision and may lead to complete loss of vision. After twenty years of diabetes, nearly all patients with Type 1 diabetes and >60% of patients with Type 2 diabetes will have some degree of retinopathy so it is a huge issue, nationally and globally.

Current treatments of pan-retinal photocoagulation (laser) or intraocular injections of anti-VEGF (Vascular endothelial growth factor) drugs are both invasive and uncomfortable for the patient, making them treatments of last resort. They are typically given at a late stage in the development of these eye complications when patients' eyesight is already being threatened. They also have serious side effects.

The Noctura 400 Sleep Mask has the potential to revolutionise the treatment for diabetic retinopathy. It can be used at all stages through the progression of the disease and could also be used as a preventative treatment. It offers a home-based, non-surgical and non-invasive monitored therapy for people with diabetes who have these

serious sight complications. It will significantly change the patient experience compared with current treatments.

The Facts

There is a growing body of research which has found that diseases such as diabetic retinopathy and macular oedema are driven, in part, by lack of oxygen to the retina (retinal hypoxia). The retina uses more oxygen per unit mass than any other tissue in the body due to the fact that photoreceptors have a phenomenally high metabolic rate. That demand for oxygen becomes even greater at night, rising by around 40% as rod photoreceptors dark-adapt. In the healthy eye, this isn't a problem as the eye provides just enough to get by.

People with diabetes commonly have microvascular damage, which can start to compromise retinal blood circulation and oxygen transport and once circulation is sufficiently compromised, the result is retinal hypoxia. The body's natural response to this is to promote new growth of blood vessels to compensate by releasing VEGF but unfortunately these new vessels are weak and suffer from leakage of fluid which results in retinopathy and oedema.

Current Treatments

- Laser photocoagulation effectively cauterises the affected and damaged blood vessels in the retina; the treatment

is not permanent, delays the inevitable progress of the disease and also irreversibly damages photoreceptors. (This is the visual field loss which can lead to loss of the driving licence.)

The laser is the standard of care when the retinopathy and macular oedema become clinically significant. Although laser treatment reduces the risk of moderate visual loss by 50% at this stage, it is not effective in restoring best corrected visual acuity and has significant side effects that can impact on the quality of life. The other treatment,

- Intraocular injections of anti VEGF drugs are used for diabetic macular oedema and this treatment that is provided within secondary care to the later stages of the disease.

Noctura 400 Sleep Mask

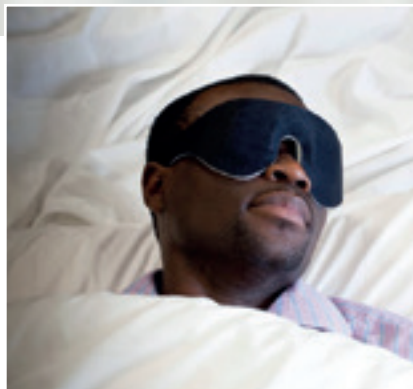
The Noctura 400 is a Sleep Mask which provides a non-invasive treatment for diabetic retinopathy, reducing the need for the invasive interventions mentioned above. It works on the principle of directing low intensity light of a specific wavelength into the rod cells during sleep. It restores the rods to their daytime state, reducing the need for oxygen and avoiding the hypoxic responses and therefore preventing the progression of retinopathy and macular oedema.

The Noctura 400 Sleep Mask

Preventative drug-free relief from diabetes related sight loss

The Noctura 400 eye mask is an effective, non-surgical and non-invasive treatment for Diabetic Retinopathy and Diabetic Macular Oedema.

By Richard Kirk, CEO PolyPhotonix



consists of organic light-emitting diodes (OLED's) housed inside a soft cushioned fabric mask, designed to be worn at night, to deliver a precise dose of light therapy during a patient's normal hours of sleep. The mask is programmed to administer the correct dose of light each night as part of a continuing therapy and it also measures patient adherence. At the end of the allocated period (usually 12 weeks), the mask is returned to the clinician for analysis and a replacement mask is provided. The collected adherence information allows the clinician to compare how regularly the mask has been worn, with changes in vision and the condition of the disease.

Availability

The Sleep Mask is currently available to patients' privately through approved optometrists as well as through our national provider, The Outside Clinic, who provide a home optician service. It is anticipated that it

will be adopted by the NHS in the future.

The Noctura 400 Sleep Mask has been developed by multi-award winning company PolyPhotonix, with a number of UK government and NHS funded research collaborations including Liverpool and Durham Universities. There are a number of clinical trials completed and a number still in progress; it is the data from these trials that has allowed the Noctura 400 to be awarded a CE mark.

On the Noctura website there are a number of patient testimonials included (also at: <https://www.youtube.com/watch?v=eKTOvY28WG0>) as well as an OCT scan from a patient who has used Noctura 400, showing the before and after scans (during a 6 month period) and the results are incredible.

WARNING

review of three Type 2 drugs



SGLT2: Canagliflozin/Invokana, Dapagliflozin/Farxiga, and Empagliflozin/Jardiance

The European Medicines Agency (EMA) has started a review of canagliflozin, dapagliflozin and empagliflozin, which are diabetes medicines known as SGLT2 inhibitors. This was requested by the European Commission following several reports of diabetic ketoacidosis (DKA) in patients on SGLT2 inhibitor treatment for Type 2 diabetes. EMA will now review all available data on the risk of diabetic ketoacidosis (DKA) with SGLT2 inhibitors and consider whether any changes are needed in the way these medicines are used in the EU.

The announcement says, "Patients who have any concerns about their diabetes medicines should consult their doctor or pharmacist. It is important that patients with diabetes continue to take their prescribed treatment and do not stop treatment without first discussing with a healthcare professional".

A similar review is being carried out by the FDA in the US. They are warning health professionals to evaluate for the presence of acidosis, including ketoacidosis, in patients experiencing these signs or symptoms and to discontinue SGLT2 inhibitors if acidosis is confirmed, and take appropriate measures to correct the acidosis and monitor sugar levels. The signs and symptoms listed included difficulty breathing, nausea, vomiting, abdominal pain, confusion, and unusual fatigue or sleepiness.

The FDA searched their database of adverse event complaints about these drugs and from March 2013 to June 2014 there were 20 cases of DKA reported, most of them with Type 2 diabetes as the indication. Hospitalisation was required in all of the cases, and the median time to onset was 2 weeks after starting the drug. The FDA said that the cases they analysed were atypical because glucose levels were only mildly elevated at less than 200 mg/dL (11 mmol/l in the UK) in some reports.

For further information:

Visit: <http://noctura.com/iddt>

Twitter: @noctura400 | Facebook: <http://tinyurl.com/Noctura400>

Freephone 0800 60 50 40

BAD PRESS

for charities

Charities have repeatedly been in the news following the sad death of volunteer fundraiser Olive Cooke. Despite a statement from her family that communication from charities did not cause her to take her own life, the issues raised are very important and charities have been widely criticised for poor or aggressive fundraising calls. In light of this, Sir Stuart Etherington, Chief Executive of the NCVO, has been asked by the Minister for Civil Society, to conduct a review of fundraising self-regulation.

The Trustees would like to reassure our members, and the wider public, that IDDT does not fundraise by cold calling or mass mailings which we consider to be intrusive and as bad as all the other unwanted calls or texts that many of us receive.

IDDT relies on voluntary donations and we are extremely grateful for the help that you our members and supporters give us.

The Winners of IDDT's lottery draws!



We are delighted to announce the winners of the first draw of our monthly lottery for June 2015. They are as follows:

- 1st prize of £339.84** goes to Chris from Bugbrooke
- 2nd prize of £254.88** goes to anon. from Amersham
- 3rd prize of £169.92** goes to Ronald from Bradford
- 4th prize of £84.96** goes to Peter from Nelson

Winners of the July 2015 draw are:

- 1st prize of £168.48** goes to Jean from Looe
- 2nd prize of £126.36** goes to Evelyn from Stockport
- 3rd prize of £84.24** goes to anon from Selston
- 4th prize of £42.12** goes to Peter from Nelson (2nd time winner!)

Note: the winners of the draws for August, September and October will be announced in our December Newsletter or will be available on our website.

Thank you to everyone who joined in IDDT's lottery.

If you would like to join in for just £2.00 per month, then give us a call on 01604 622837 or email tim@iddtinternational.org



Don't forget to ask for your FREE IDDT TAX DISC using the contact details at the end of this newsletter.

The disc is the same size as the old car tax disc and is even perforated – so show your support for us and ask for your IDDT tax disc today!

Winner of the Pomegreat Competition

Over 100 people entered the competition to win a year's supply of Pomegreat juice drink in the June. The answer to the competition was 4 and the winner was Mr J.G. of Seaham in County Durham, so we hope he enjoys his juice!



Hypoglycaemia

& Type 2 diabetes



It is well recognised that hypoglycaemia is the biggest daily fear of people with Type 1 diabetes and those with Type 2 diabetes who are taking insulin or drugs that can cause hypoglycaemia. The only treatment for Type 2 diabetes that does not cause hypoglycaemia is metformin because it increases the body's sensitivity to insulin but does not increase insulin production, as do other drugs. If people with Type 2 diabetes are treated with insulin, then they are also at risk of hypos.

It has been thought by many people, including health professionals, that severe hypoglycaemia was primarily a problem for people with Type 1 diabetes and rarely, if ever, occurs in Type 2 diabetes. However, research presented at the ACCE Congress, May 2013, has confirmed that severe hypoglycaemia can occur in both Type 1 and Type 2 diabetes. (Severe hypoglycaemia was defined as hypos that required the assistance of another.) This study also showed:

- During the time studied, 11.9% of people with Type 1 diabetes had a severe hypo compared with 1.7% of people with Type 2 diabetes,
- Quality of life was considerably worse in people who experienced severe hypos.
- Social functioning scores were lower in people with Type 1 and Type 2 who experienced severe hypoglycaemia compared with those who did not.
- Severe hypoglycaemia appeared to be linked to lower physical health problems in people with Type 1 diabetes. However, there was only borderline association in Type 2 diabetes..

The researchers concluded that their research highlights the need to minimise hypoglycaemia and particularly severe hypoglycaemia in both Type 1 and Type 2 diabetes.

A further report, 'Hypoglycaemia and Diabetes' issued by the American Diabetes Association [ADA] and The Endocrine Society in 2013 reviews the impact of hypoglycaemia on people with diabetes and highlights that certain populations are especially vulnerable to hypoglycaemia – children and teenagers with Type 1 diabetes, the elderly, hospital patients and pregnant women. One of its recommendations is that blood glucose level targets should be individualised based on the patient's age, life expectancy, other conditions present, patient preferences and how hypoglycaemia might affect the person's life.



Lizzie's Tea Party to help children with IDDT's international projects

Lizzie has Type 1 diabetes and every year she and her Mum organise a big fundraising party where they live, in Ballatar. The children have a great time including fun on a bouncy castle. Their friends and family are very supportive and this year they raised an excellent £1117.

They raise the money to help IDDT with our international activities to help families with diabetes that cannot afford the insulin and other medical supplies they need.

So a huge thank you to Lizzie, her Mum, their family and many friends for their support.

More on the National NHS Diabetes Prevention Programme

Back at the start of June, Keith Vaz, MP for Leicester East, issued a statement on the joint initiative between the Government and Diabetes UK, the National NHS Diabetes Prevention Programme.

The InDependent Diabetes Trust (IDDT) fully supports Keith Vaz's call for the Diabetes Prevention Programme to be a well thought through strategy and to be "tough and effective". We would also agree with his statement that lukewarm implementation will only achieve lukewarm results. However, the Diabetes Prevention Programme only applies to Type 2 diabetes as Type 1 diabetes is unrelated to obesity and cannot be prevented.

While preventing Type 2 diabetes should be a priority, it is important to remember that there are over 3 million people who are already living with Type 1 or Type 2 diabetes, many of whom are not receiving the care they need and deserve. They too should be a priority in the NHS Five Year review.

The National Diabetes Audit 2012-2013 showed that only 4% of those with newly diagnosed Type 1 diabetes and 17% of those with Type 2 diabetes were offered a structured education programme and less than half received the essential NICE 9 key health checks to maintain their health now and in the future.

So while we support the call for the Diabetes Prevention Programme to be a priority for the NHS, we hope that people already living with diabetes will be an equally important priority as this will improve the health of people with diabetes, prevent diabetes complications and also save NHS costs over time.



IDDT's Annual General Meeting 2015

As members are aware, we are unable to afford to hold a Conference every year but we do have to hold an Annual General Meeting to comply with charity law. So we are holding an afternoon meeting on Saturday, October 17th 2015 at the Kettering Park Hotel, Kettering Parkway NN15 6XT (Junction 9 off the A14). We hope that as many of you as possible will be able to join us – it is your opportunity to meet the Trustees and staff and of course, each other.

The programme for the afternoon will be as follows:

- 12 noon – Arrival
- 12.15 to 1.30 – free sandwich lunch
- 1.45 - Annual General Meeting
- 3.00 - Tea and biscuits
- 3.30 - Dr Gary Adams, 'Sharing experiences'
- 4.30 - Farewell

The AGM

If you would like to nominate someone for election to the Board of Trustees, then please send nominations to IDDT by October 2nd with a letter of agreement from the person you are nominating and seconded by another member of IDDT.

Please let us know!

For catering purposes, please let us know if you are attending by October 2nd by contacting IDDT, telephone 01604 622837, Rita by email rita@iddtinternational.org or write to IDDT, PO Box 294, Northampton NN1 4XS. Rita will then send you confirmation and a map to find the Kettering Park Hotel.

If we can be of help in any way, please contact:

InDependent Diabetes Trust (IDDT), PO Box 294, Northampton NN1 4XS
Tel: 01604 622837 email: enquiries@iddtinternational.org Or visit our website: www.iddtinternational.org