

May frets about her weight

May is a retired secretary in her fifties. She gave up work two years ago, when her husband, Bill took early retirement from British Rail. They have a caravan that they keep by the sea at Frinton, but Bill wants to be a bit more adventurous and has persuaded May that it would be a good idea to take it to France. May comes to see you because she has trouble controlling her weight and is worried that she might not compare favourably with French ladies, who she knows are often very elegant. She has read about a new wonder drug called Rimonabant, which apparently lets you eat what you like and still lose weight, and as she loves her food she is hoping you will prescribe this for her.

On questioning about her general health, she tells you that these days she feels tired all the time (one of the reasons Bill thinks she needs a good holiday) which she puts down to her age, but otherwise she's fine. Well, apart from her eyesight – she's made an appointment to see the optician, because she's noticed the telly looks a bit blurry – not that it matters much, it's all rubbish anyway isn't it, but she does like to relax with a cup of tea and a biscuit and watch a nice film in the afternoon. Bill says she doesn't need an excuse to have a cup of tea, as she's always got the kettle on, but she only does it when she feels thirsty – it's not her fault she's thirsty a lot!

As part of your general examination you ask her height and weight. She tells you she is 5 foot 2 inches tall and weighs 11 stone.

What tests would you recommend for May and why? Assuming your suspicions are proven to be correct, what treatment(s) would you recommend for her? Would weight reduction be part of this treatment and if so, should she take weight reducing drugs or are there other ways she could lose weight?

Mentor notes

Although the focus of the patient is very much on losing weight and students could spend some time researching the different types of weight reducing drugs and their mechanisms of action, they really need to think about whether we should be using these drugs at all and researching the controversy around them. You can find a BMI calculator at

http://www.nhlbi.nih.gov/health/educational/lose_wt/BMI/bmicalc.htm

which will help the students decide if May does need to lose weight.

The real focus of this case for the doctor is not the weight reduction per se, but rather the underlying Type II diabetes and that is where the participants need to spend most of their time, so you need to steer them accordingly.

Rimonabant is a new anti-obesity drug which has been developed by Sanofi-Aventis, a large pharmaceutical company. If you are overweight this drug may help you lose weight.

How does Rimonabant work?

Rimonabant works by blocking certain chemical pathways within the brain which make you feel hungry. The drug binds to special chemical receptors in the brain known as endocannabinoid receptors. This binding renders these receptors unresponsive to stimulation by chemicals known as 'cannabinoids'. Cannabinoids are known to stimulate hunger and cause craving for food. It is known that Marijuana stimulates cannabinoid receptors making users ravenously hungry. In other words Rimonabant should help suppress your appetite (so it does not, as May believes, allow you to 'eat what you like and still lose weight'). The end result is you eat less and lose weight.

Is it effective?

This is not known as yet. In clinical trials volunteers who took Rimonabant lost up to 20 pounds in weight over the course of a year. A drop in waistline measurement was also observed. Most of the weight loss has been shown to occur during the first year of use.

Are there other benefits apart from weight loss?

There may be an added benefit in those who smoke. Rimonabant may control the urge to smoke. In one study the drug was shown to double the chances of a smoker quitting successfully, at least short term. Rimonabant may also help reduce the level of fats in the blood.

Will it reduce the risk of heart attacks and strokes?

Obesity is known to be linked to a higher cardiovascular risk. To date there are no trials which demonstrate benefits in terms of cardiovascular outcomes. In other words we do not know if taking this drug will help you live longer!

How is it administered and what is the recommended dose?

Rimonabant will be available as oral tablets and the recommended dose is 20 mg daily.

Weight loss pill warning issued

<http://news.bbc.co.uk/1/hi/health/6907160.stm>

A weight-loss drug used by thousands is unsafe for those also taking antidepressants, health watchdogs warn.

The European Medicines Agency advises patients with ongoing major depression or those on antidepressants against taking rimonabant.

About 41,000 UK patients have been treated with rimonabant since it was launched in the UK in June 2006.

Last month US safety officials voted to ban the pill amid concerns about increased suicide risk.

Rimonabant, brand name Acomplia, is currently recommended for obese patients with a risk of developing diabetes or cardiovascular disease.

It works by blocking receptors in the part of the brain that regulates food intake and the body's ability to break down sugars and fats in the blood.

The UK's National Institute of Clinical and Health Excellence is currently appraising the drug for use on the NHS.

The EMEA said doctors in the EU had been warned "of the risk of psychiatric side effects" since June 2006 but it was now upgrading this warning.

But the agency concluded that the benefits of Acomplia continue to outweigh its risks, except in patients with ongoing major depression or taking antidepressants.

Evidence suggests that one in 10 people who take rimonabant may develop psychiatric side effects.

The commonest psychiatric side effects are low mood and depression. Anxiety, irritability, nervousness and sleep disorders may also occur.

Approximately one patient in every 100 may experience suicidal thoughts.

Up to the end of June 2007, the UK's drug safety regulator, the Medicines and Healthcare products Regulatory Agency, had received a total of 318 cases, from UK sources, of adverse drug reactions which were suspected to have been caused by rimonabant.

This included 364 psychiatric reactions. Amongst these, there were 48 reports of depression, 16 reports of suicidal thoughts and one report of self-injury.

The MHRA advised: "If you start to experience symptoms of depression while taking Acomplia, or if you are currently being treated with antidepressants, consult your doctor.

"If you have had depression in the past but feel well on Acomplia, you should continue treatment with Acomplia and discuss your treatment with your doctor at your next routine appointment."

Sanofi-aventis, the drug company that makes Acomplia, said the product's labelling had been updated accordingly.

"Acomplia is now contraindicated in patients with ongoing major depressive illness and/or ongoing anti-depressive treatment.

"'Special Warnings and Precautions' of the Summary of Product Characteristics (SmPC) have been updated as well to include information on depressive disorders," a statement from the company said.

May's symptoms suggest she has diabetes, so students need to investigate this condition:

Difference between Type I and Type II diabetes

People can get diabetes at any age. Type 1 diabetes, formerly called juvenile diabetes or insulin-dependent diabetes, is usually first diagnosed in children, teenagers, or young adults. With this form of diabetes, the beta cells of the pancreas no longer make insulin because the body's immune system has attacked and destroyed them. Treatment for type 1 diabetes includes taking insulin, making wise food choices, being physically active, taking aspirin daily (for some), and controlling blood pressure and cholesterol.

Type 2 diabetes, formerly called adult-onset diabetes or noninsulin-dependent diabetes, is the most common form of diabetes. People can develop type 2 diabetes at any age—even during childhood, but it is more common in middle age. This form of diabetes usually begins with insulin resistance, a condition in which fat, muscle, and liver cells do not use insulin properly. At first, the pancreas keeps up with the added demand by producing more insulin. In time, however, it loses the ability to secrete

enough insulin in response to meals. Being overweight and inactive increases the chances of developing type 2 diabetes, which is probably why the incidence is increasing in young people. . As the rates of obesity have soared over the last twenty years or so, so in tandem has the incidence of Type 2 diabetes. Also, it is not just obesity, but where the fat is - the apples v pears debate. Fat around the viscera is probably worse news than fat on the hips. Again the participants may have come across this in the media.

Treatment includes using diabetes medicines, making wise food choices, being physically active, taking aspirin daily, and controlling blood pressure and cholesterol.

Students need to think about where insulin is made, what it normally does and the consequences if we don't have enough of it, or of what happens if the target cells don't respond to it.

What happens if insulin does not work effectively?

One of the main actions of insulin is to help regulate blood sugar (or to be precise, blood glucose) levels. It achieves this in part by promoting uptake of sugar by cells e.g. muscle cells. Insufficient action of insulin leads to a reduction in sugar uptake and therefore causes an abnormal rise in blood sugar. The result: the symptoms of diabetes. The biochemistry of this is quite complicated – see how your group get on to gauge how far you can get them into this.

Up to two-thirds of people with type 2 diabetes have no symptoms. If present, the most common ones are:

- increased production of urine (the body is trying to get rid of the excess glucose in the urine)
- unusual thirst
- tiredness (because the glucose is "going to waste" and not being converted into energy)
- loss of weight
- increased appetite
- feeling sick
- blurred vision
- infections such as thrush or irritation of the genitals

Some people simply feel a bit unwell or assume they are just ageing.

Diagnostic tests

Type 2 diabetes is diagnosed with the following blood tests:

- Fasting blood glucose level -- diabetes is diagnosed if higher than 126 mg/dL on two occasions.
- Random (non-fasting) blood glucose level -- diabetes is suspected if higher than 200 mg/dL and accompanied by the classic symptoms of increased thirst, urination, and fatigue. (This test must be confirmed with a fasting blood glucose test.)
- Oral glucose tolerance test -- diabetes is diagnosed if glucose level is higher than 200 mg/dL after 2 hours.

Type 2 Diabetes Control

Treatment depends very much upon how well controlled your blood sugar levels are. Initially diabetes management and control may involve dietary changes alone. Your doctor usually refers you to a local dietician to advise you about diet.

If on review diet alone has been unsuccessful then your doctor may consider medication for diabetes control. Typically, this is either metformin or gliclazide tablets.

Tablets for diabetes control act in different ways:

- Help the pancreas to produce more insulin, or
- Help your body to use insulin more effectively, or
- Slow down the rate at which glucose is absorbed by the bowel after eating a meal

For some sufferers of Type 2 diabetes treatment with dietary changes and tablets is not entirely effective for diabetes management, and they may then need insulin injections.

Self help for patients with diabetes

If you suffer from Type 2 diabetes your doctor and other health personnel will be available to help you. But there are things you can do to help yourself control diabetes, and these can be very effective in their own right.

- Lose some weight: Evidence shows that a 10% reduction in body weight can lead to on average a 50% reduction in fasting blood sugar levels.
- Exercise Regularly: with regard to diabetes, regular physical activity aids weight management; improves insulin sensitivity and therefore blood glucose control; aids blood fats control; and improves your overall sense of well-being.

- Eat healthily: maintain and adhere to a healthy diabetic diet.