Management of high blood glucose levels and steroid therapy in adult patients

Information for patients

Taking steroid treatment when you have diabetes, or are at high risk of diabetes, can make your blood glucose (sugar) levels more difficult to control. This leaflet will give you essential information on:

- What are steroids?
- How do steroids affect blood glucose levels?
- Who is at high risk of developing high blood glucose levels with steroid therapy?
- Managing and monitoring raised blood glucose levels
- Diabetes treatments
- Stopping steroid treatment
- After care

What are steroids?

Corticosteroids (also known as steroids) are hormones that occur naturally in the body and can be manufactured for a range of medicinal uses, such as reducing inflammation. They are available as tablets, injections, creams, ointments and inhalers, and this leaflet is for people using steroid tablets.

There are several different types of steroids and they vary in how long a single dose lasts (from approximately 8 hours to over 2 days). Depending on the type of steroid you have been prescribed, you may need to take a tablet daily, several times a day or once weekly. You may have been prescribed steroids as a short course (as short as 5 days), a course that gradually reduces over time or a continuous course for many years.

How do steroids affect blood glucose levels?

Steroid treatment increases the amount of glucose produced by the liver. Steroids can also make your body produce less insulin than usual, which is the hormone that controls glucose levels in the blood. If your body is unable to make enough insulin to deal with the increased production of glucose by the liver, your blood glucose levels will rise above normal.

If you were testing your blood glucose levels before starting steroids, you may notice your blood glucose levels are raised or more difficult to control. This is called “Steroid-induced hyperglycaemia”. A rise in glucose, related to steroid therapy occurring in people without a known diagnosis of diabetes is termed “Steroid-induced diabetes”.
Who is at high risk of developing high blood glucose levels with steroid therapy?

People with the following predisposing factors have a higher risk of developing high blood glucose levels with steroid therapy:

- Patients with pre-existing type 1 and type 2 diabetes
- People at increased risk of diabetes (obesity, family history of diabetes, previous gestational diabetes, ethnic minorities, polycystic ovarian disease)
- People with previously abnormal results on a glucose tolerance test
- People with previously high blood glucose levels on steroid therapy.

Managing and monitoring raised blood glucose levels

- If you have pre-existing diabetes, you are at high risk of developing high blood glucose levels with steroid therapy. You should be tested for glycated haemoglobin (HbA1c), which identifies the average plasma glucose concentration at the start of treatment. You should check blood glucose level before each meal and at bedtime. Aim for blood glucose between 6-10 mmol/L.
- If you do not have pre-existing diabetes and are deemed high risk, you should have a blood glucose meter, and test the blood glucose at least once a day (preferably before lunch, or one hour after). If your blood glucose level is raised more than 12 mmol/L, you should test the blood glucose at least four times day. If the blood glucose is greater than 12 mmol/L on two occasions within 24 hours, then you should contact your doctor or nurse, as they may need to start or increase your diabetes medications.
- The symptoms of raised blood glucose levels include the following:
  - Tiredness or fatigue
  - Thirst or dry mouth
  - Genital thrush
  - Blurred vision
  - Frequent need to pass large volumes of urine.
- If you experience these symptoms or have high blood glucose readings, or both, contact your GP promptly for advice.

Diabetes treatments

Steroid-induced high blood glucose levels are usually treated with gliclazide tablets or insulin injections. Both work to lower blood glucose levels.
Gliclazide tablets: If you are already taking gliclazide tablets, the dose may need to be increased. If you are starting gliclazide, the initial dose is usually 40mg taken each morning with breakfast. This may need to be increased to 240mg each morning. You may also need 80mg with your evening meal (320mg daily is the maximum dose). You will need to discuss this with your doctor or nurse.

Insulin injections: If gliclazide tablets do not control the blood glucose levels, your doctor or nurse will suggest injecting insulin. There are many types of insulin. If you require insulin, you are likely to need a daily injection of a slow-acting insulin with breakfast, at least to start with. A nurse will show you how to inject, adjust the dose, and will support you through this process.

If you have been injecting insulin for more than three months and are a driver, you should contact the DVLA and your insurance company, even if the insulin treatment is temporary.

If you have diabetes and you are already taking insulin, you may need a larger dose or more injections to cope with the high blood glucose levels. Discuss this with the doctor or nurse who usually supports you with your diabetes management.

Reducing and stopping steroid treatment

As your steroid treatment is reduced or stopped, your blood glucose levels will fall. If you are taking gliclazide or insulin, you may be at risk of hypoglycaemia (low blood glucose) commonly called “hypos”. You will probably need to reduce your diabetes medication as your steroid medications are reduced and your blood glucose levels fall. The symptoms of hypoglycaemia include:

- Tingling of the lips
- Hunger
- Palpitations
- Trembling and shaking
- Becoming pale
- Sweating heavily
- Feeling anxious

Treating a “hypo”

- If you are able to test your blood glucose, a reading lower than 4 mmol/L will confirm you are having a “hypo”. If you recognise that you are having a “hypo”, treat it immediately with something that will raise your blood glucose quickly such as 6 dextrose tablets or 4 standard jelly babies. If you do not feel better after 10 to 15 minutes, repeat this treatment.

- Once you feel better and your blood glucose has risen to 4 mmol/L or higher, have a small starchy snack such as a banana or a sandwich.
• You may need to reduce or stop your gliclazide tablets or insulin if you are having regular “hypos”. Your doctor or nurse will advise you how to do this.

After care

1. Continue to monitor your blood glucose once daily until your blood glucose levels return to normal (between 4 and 7 mmol/L). However, if your readings are higher than 12 mmol/L, test more often and contact your doctor or nurse.

2. It is advisable to delay having your HbA1c checked for three months to exclude the effect of the steroid treatment.

3. Some people will require intermittent steroid treatment and will need insulin injections each time they have steroids. In this instance, keep unopened insulin in the fridge and check the expiry date before using.

4. Once steroid therapy is completed, discard any partially used or open insulin cartridges or pens.

Useful resources

TREND-UK: www.trend-uk.org
Diabetes UK: www.diabetes.org.uk
Diabetes UK: 0345 123 239

Who should I contact if I have a problem or question?

On Mondays to Thursdays 9am - 5pm and on Fridays 9am-1pm, please contact the diabetes specialist nurse on 07789 615556 /07557 296377. Outside of these hours, please contact your GP for advice.

What should I do in case of an emergency?

Please attend the nearest Accident and Emergency department in case of an emergency.
Languages/ Alternative Formats

Please ask if you require this information in other languages, large print or audio format. Please contact: 01895 279973

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If you need this information in another language, in a large font or audio format, please contact the patient information officer on the following number: 01895 279973.

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