Making sense of your waking blood glucose measurement

Children and Young People’s Diabetes Service

Sometimes you will get a high blood glucose level before you have had breakfast. Lots of people ask what causes this, given you have had nothing to eat for 7-8 hours.

Three things can cause a high morning blood glucose:

1. **Dawn Phenomenon**
   **What:** A natural rise in blood glucose between 4am and 8am
   **Why:** This effect is caused by the increased secretion of growth hormone raising the blood glucose late in the night and early in the morning. A high morning blood glucose is a common problem for growing children.

2. **Somogyi Effect (night time rebound)**
   **What:** The body’s response to hypoglycaemia that happens when you are asleep
   **Why:** When you have a hypo, you body releases several hormones to bring the glucose level up. This overshots in people with diabetes giving a high glucose level 3-4 hours after the hypo.

3. **Waning Insulin**
   **What:** Insulin may not last as long in you as in other people
   **Why:** Taking an insulin like Lantus Glargine once a day, in the morning, may mean that by the following morning its effects have worn off.
Why is it important to check the cause?

1. If you are going hypo at night this can be dangerous.
2. For the somogyi effect, increasing the insulin will make the problem worse.
3. If you start the day with a high blood glucose you will probably stay high all day.
4. High overnight glucose will mean 12 hours high blood glucose per day, which will raise your HbA1c.

How do I work out which is which?

What we need is for you to test your blood glucose level at bedtime, at 3am and pre-breakfast on at least three different nights.

This will give you a picture that might look something like this which gives us a clue to what is going on:

What should I do next?

Either bring these blood glucose levels to clinic, when you come to see us or you can contact us by phone/email. We can discuss these results with you and determine whether there should be changes to your insulin dosages.
Contact Details:

Office Hours (Mon-Fri 9am to 12pm): 020 3447 9364 (Children’s Diabetes Nurses)

Emergency mobile (Mon-Fri 8am – 6pm): 07940476811

Out of Hours: 020 3456 7890 and page Paediatric On-call Registrar

Email: uclh.cdiime@nhs.net or uclh.cdorange@nhs.net

Further information and fact sheets can be found on our Children and Young People’s Diabetes web page at www.uclh.nhs.uk/T1