Sick Day Rules

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“Do you know your sick day rules?”
Myths

Sick Day Rules
- Type 2 Diabetes
- Type 1 Diabetes
- Ketones

Case Studies
Myths

‘I don’t understand why my blood sugars are so high when I haven’t been eating’

‘I didn’t take my medication/insulin as I wasn’t eating’
Sick Days

Infections, colds, sore throats, flu or feeling generally unwell

Injury, pain, invasive dental work, surgery

Emotional or psychological stress
Sick Days

Illness, infection, injury, pain and stress

↓

Stress Hormones
(counter Regulatory Hormones)

Adrenaline, Glucagon, Cortisol and Growth Hormone

↓

HYPERGLYCAEMIA
Sick Day Rules – Type 2 Diabetes

Regular Blood Glucose (BG) Testing
- 3-4 a day

Continue to take usual diabetes medication/insulin
- Contact doctor about continuing Metformin if D&V

Plenty to drink

Contact the doctor, practice nurse, diabetes team if you have:
- D&V persisting ≥ 12 hours
- BG continually above 15 mmol/L for ≥ 12 hours
- Infection or fever
Sick Day Rules – Type 1 Diabetes

Test BG and if ↑ test for ketones
- Test BG 2-4 hours
  - If > 15mmol/L on two consecutive tests &/or feel really unwell test for ketones

**Never** stop taking your insulin
- Must take long actin insulin
- If not eating may not need rapid acting insulin for food, but do need for correcting
  - Use correction factor (ISF) to work out how much you need
  - If don't have a correction factor then between 5 and 10% of total daily dose tdd (long +rapid acting insulin ) is given as a bolus
  - If have ketones add 50% extra
    - E.g. 6 unit correction + 3 units = 9 units
Sick Day Rules – Type 1 Diabetes

Have plenty to drink
  ◦ If BGLs are high have fluids without sugar (water or diet fizzy)
  ◦ If BGLs <11 have some fluids with sugar if not eating
    ◦ Diluted juice or powerade etc.
  ◦ Aim 500-1000ml
  ◦ Let someone know you are unwell
Sick Day Rules – Type 1 Diabetes

Contact Doctor, Diabetes Clinic or Emergency Service if

- Persistent vomiting
  - More than 3 vomits in two hours
- High ketones in blood
  - Ketones over 3.5 that are not responding to extra rapid acting insulin
- Persistent Hyperglycaemia
- Infection or fever
- Rapid breathing or abdominal pain
- Hypoglycaemia
Ketone Testing

Pharmac Requirements
- Type 1 Diabetes
- Previous DKA
- 2 x Boxes per prescription

Interpreting Results
- BG >16.7mmol/L
- 0-0.6mmol/L OK
- 0.6-1.5mmol/L May indicate problem
- >1.5 mmol/L At risk of developing DKA
Sick Day Supplies

- Long life fruit juice
- Non diet fizzy drink
- Two 2 litre bottles of still water
- Soup
- Ice cream
- Unopened box of glucose monitoring strips
- Unopened box of ketone monitoring strips
  - Check expiry dates
- Written instructions on how to manage sick days
Case History 1: Lisa

24 year old
Works full time as a PA
Recent diagnosis T1DM
Lantus (18 units) and Novorapid (5-8 units) with meals
Plays netball once a week and goes to gym at least twice a week
Had to curtail activities recently as she has not felt well enough
Case History 1: Lisa

D&V following a work function
Stopped insulin as unable to keep any food down
BG 14.2 mmol/L

What would you advise?
Case History 1: Lisa

Advise NOT to stop taking insulin

Ascertain if able to tolerate oral fluids
  ◦ If able to tolerate fluids can be managed at home

↑ number of blood tests +/- Ketone testing
  ◦ If has ketones may need additional 5-20% of usual dose depending on BG

Offer regular contact re advice on need for additional insulin etc

Develop a sick day management plan
Lisa’s sick day management plan

Keep a small amount lemonade as part of sick day kit & try to continue fluid intake

Test blood glucose (BG) every 2 hours

Drink sugar free fluid if BG >15mmol/L & switch to ordinary sweetened fluids when BG <15mmol/L

Check ketones if BG >15 & when you feel sick

◦ Why check for ketones
  ◦ Sign of excess fat burning & excess acids and can lead to acidosis and vomiting
  ◦ If ketones are present you may need to increase your insulin dose
Lisa’s sick day plan - continued

Choose a contact person
- Diabetes Nurse, GP, Practice Nurse with special interest in diabetes
- Examples of when you should call for advice include
  - If you are uncertain if the situation can be managed at home
  - If you are too unwell to follow these guidelines
  - If the cause of being unwell is not clear
  - BG levels are not improving despite giving extra insulin or
  - You have moderate to large ketones on testing

If Hypoglycaemia occurs, it should be managed in the usual way
Lisa’s sick day plan - continued

If BG levels >15 &/or ketones present it is advisable to avoid exercise

- Being insulin deficient at this time and undertaking exercise → stress response → ↑BG levels

Useful to take temperature and monitor what drinking and urine output as well as documenting presence of ketones

If BG levels are rising you need more insulin not less

- Diabetes Nurse Educator or GP can help you decide how much extra you need
Case 2: Louise

62 yrs

T2DM 12yrs

On combination insulin & Metformin last 3.5 yrs
  ◦ Novomix 30 – 20 units am  10 units pm
  ◦ Metformin 1g bd

During period of stabilisation on insulin sick day plan revised
  ◦ Additional short acting insulin at home
  ◦ Steps to take with Metformin
Case 2: Louise

Last few days BGL 15-17

What would you recommend?
Case 2: Louise

Symptoms
- Symptoms of hyperglycaemia?

Underlying cause?
- Infection etc

Changes in activity or diet?

Tolerating food and fluids?

Does she know what to do with her Metformin?
Case 2: Louise

↑ Insulin by 2 units
- If no improvement may need to ↑ further
- As recovers will need to down titrate dose
  - Continue more frequent monitoring

Metformin
- Lactic Acidosis Rare
  - Dehydration & Elderly → ↑ risk AKI → ↑ risk Lactic Acidosis
  - Consider discontinuing while unwell
Summary

Regular BG Monitoring +/- Ketone testing
Maintain good fluid intake
Continue with medication
  ◦ May need more rather than less