

DIABETES

adventure travel pre-trip preparation

For the use of medical practitioners only (Dr Jim Duff, 10/07/2011)

These notes are to aid the assessment and preparation of a patient with diabetes, who is intending to undertake an adventure holiday in a wilderness setting. It will help to:

- Assess their suitability for wilderness/adventure
- Reduce exercise restriction due to diabetic symptoms
- Reduce the risk and/or severity of complications due to diabetes or diabetic emergencies, e.g. episodes of hypO-glycaemia (low blood sugar) or hypER-glycaemia (high blood sugar), while travelling
- Ensure the diabetic (and partner) has the skill and means to direct their treatment in an emergency

This advice assumes the person is otherwise well physically, mentally and emotionally, and has no coexisting chronic conditions such as cardiovascular disease, asthma or epilepsy (if they do, each condition needs individual assessment). If you have any doubts about their suitability for a particular trip, a physician's advice should be sought.

PRE-DEPARTURE ASSESSMENT AND PREPARATION

The best guide to how your patient's diabetes will react on an adventure holiday is their past performance in similar situations. You should warn them that there are some risks to traveling with diabetes, but by following your advice the risks can be minimized.

Ideally a diabetic should travel with a companion who is trained to recognize and treat any problems (at least 'hypO' episodes). The diabetic must check the trip leader knows how to manage hypO-glycaemic episode.

Insulin dependent diabetics are more likely to experience problems with blood sugar control. Take this opportunity to advise on a graded fitness program, to turn fat into muscle, stop smoking and optimize medication, etc.

1) General considerations

An adventure holiday is not usually a cause of major problems for diabetics providing they are organized, diligent and:

- They have been thoroughly assessed and prepared
- They and their companion are confident in monitoring and adjusting meals and medication (see below)
- They can both recognize and deal with hypO-glycaemic ('hypO') episodes
- They know how to prevent/deal with other problems diabetics are prone to, e.g. skin and urinary infections
- They know how to carry and store insulin in extremes of heat and cold

2) Concerns

- There may be difficulties keeping medication at the right temperature
- HypO-glycaemic episodes are more likely due to aggravating factors such as: increased exercise levels, diet variation, meal irregularity, climatic extremes, high altitude and jet travel across time zones
- Diarrhoea, vomiting or anorexia can interfere with medication, resulting in loss of blood sugar control

- Should they suffer any kind of illness or accident, the risk of complications is increased, especially infection
- The nature of diabetes means that the longer the disease has been present, the greater the chance of a stroke or heart attack occurring. Combined with a wilderness setting, fatal events are thus more likely

3) History and examination

- Take a full medical history with particular attention to cardiovascular risks (see also hypertension and CVD notes)
- Is there any organ damage or failure? This must include neurological and vascular examination of extremities and eyes. If organ damage is present, this must be followed up to assess severity
- BMI, cholesterol/lipids, liver and renal function, Hb1Ac, fbc
- A resting ECG is recommended if they have had diabetes for more than 10 years or if over 30 years old (note that type 2 diabetics are often more prone to end organ damage than younger type 1 diabetics due to the longer duration of their disease and often considerable time between onset and diagnosis)
- An exercise ECG to exertion rates expected on the trip may be needed if there are doubts as to fitness
- Are there any cardiac, respiratory or diabetic symptoms at exercise to levels and duration expected on their trip?

4) Diabetes preparation

- Check diabetic control and optimise medication. To cope with time zones, varying meal times/exercise levels, consider changing their insulin regime to 4 times a day
- Blood sugar is affected by the level of exercise undertaken. The only way to work out your patient's response is to do so before departure
- Train a companion or 'buddy' how to recognise and treat a 'hypo-glycaemic episode'
- They may be given the usual vaccinations and anti-malarials

5) May they go?

If this advice and preparation is followed then the inherent risks of adventure travel in a wilderness setting for a diabetic are minimized as far as possible. They should be travelling with a companion who can deal with a hypo or there must be a doctor along.

However, they will have to accept that there is an increased risk involved in adventure travel.

6) Suggested advice while travelling

- Always carry an emergency snack for delayed meals or hypo-glycaemic episodes
- If cooks or hotels are unable to produce a diabetic diet, choose the most appropriate food from the menu
- Monitor blood sugar levels frequently (6-8 times/day) especially when on the move or exercising, and adjust doses to suit
- When flying, one suggestion is to keep going with regular pre-departure meal times/medication times until arrival at the ultimate destination. Then change to the new time for meals/medication by small increments of one or two hours. Insulin dose should be reduced if given closer together. Conversely a small increase in dose should be made plus a snack to extend the interval between doses
- Consider running your blood sugar levels a little higher than you would at home
- High altitude can delay carbohydrate absorption from one's stomach so insulin may need to be given after a meal rather than before

- Increasing fitness leads to increased sensitivity to insulin and you may need to adjust your insulin dose downwards
- Diabetics are more prone to infections, so do not scratch rashes, bites or abrasions; clip toenails regularly and check your feet frequently. Any infection must be treated urgently
- Vomiting is a major problem and unfortunately common on such trips. Know how to treat it (see appendix). Uncontrollable vomiting is dangerous, evacuate urgently for medical attention
- You must never stop your insulin completely or you will rapidly decompensate
- If you feel unwell, inform your companion/'buddy'/leader and check (or have them check) your blood sugar

7) Pre-departure check list

Items to be carried by people with diabetes:

- Written medical history with current medication, plus phone numbers of their doctor(s) and reason for carrying needles/syringes (for airport security/customs)
- Sugar containing sweets, glucose tablets or glucose gel (e.g. Hypo-Fit™). These items must always be readily available
- Glucagon for IM injection (their companion needs to be trained to use it for a hypo-glycaemic episode)
- Anti-vomiting medication as tablet, buccal tablet, injection or suppository
- Blood glucose meter (these can be affected by high altitude, the general tendency being to underestimate; they should be warm when used, so carry them against one's skin), urine multi-stix and associated supplies
- Store insulin in a refrigerator whenever possible; do not let it freeze (as it may happen in a plane's cargo hold!)

APPENDIX

Useful websites include www.friouk.com, www.mountain-mad.org. See also 'Diabetes - further advice' and 'Advice - high altitude' on www.treksafe.com.au.

A protocol to deal with a vomiting diabetic in a wilderness setting

- Exclude serious abdominal emergencies such as appendicitis
- Treat the cause (e.g. food poisoning, diarrhoea, HACE)
- Once 'retching' (when the stomach is empty, usually after three or four vomits, and the person is bringing nothing up), give half a glass of warm water (to be taken as tiny sips) and one or two antacid tablets to chew
- If retching continues, give an anti-emetic (e.g. Stemetil, as Buccastem under the upper lip, or as a suppository, or by injection)
- If hypO-glycaemia is occurring, give glucose:
 - **If fully conscious:** suck on a glucose tablet or glucose gel or sips of sugary drink, which will be effective if they can be kept down for 10 minutes
 - **If not fully conscious or still vomiting:** place crushed glucose tablets or gel or grains of sugar or honey, a small amount at a time, under the tongue where some absorption will occur, OR give sugar solution or glucose gel as an enema
 - OR give a glucagon injection if trained
- They may need to reduce (or briefly stop) their diabetic medications
- If hypER-glycaemia is occurring, continue with your normal medications
- If vomiting continues and the diabetic is becoming weak and dehydrated, evacuate urgently