Diabetes and the skin

Part 1 – tender skin lumps

‘I have got these ugly tender lumps all over me. I do not like going out because people might stare at me and it’s uncomfortable sitting because they are all over my bum’.

Question 1
What are the lesions?

Question 2
What dangerous complications can occur?

Question 3
What management would you recommend for Sarah?

Answer 1
These are typical eruptive xanthomas associated with severe hypertriglyceridaemia. Usually they concentrate in skin areas subject to pressure (eg. elbows, knees, buttocks) but can be widespread (as in Sarah’s case). The high triglyceride levels reflect accumulation of chylomicrons (absorbed from the gut) and very low density lipoprotein (produced by the liver). Particles accumulate partly because of increased hepatic formation and partly because of decreased peripheral clearance.

Common causes of severe hypertriglyceridaemia are uncontrolled diabetes and high ethanol intake. Other causes are shown in Table 1. In diabetes, a high ethanol intake can result in extremely high triglyceride levels (exceeding 20 mmol/L). The American Diabetes Association suggests limiting ethanol intake to one drink per week for people with type 2 diabetes and hypertriglyceridaemia (the NHMRC recommends 1 or 2 drinks of 10 g ethanol per day for healthy women and men respectively).

Table 1. Causes of severe hypertriglyceridaemia

<table>
<thead>
<tr>
<th></th>
<th>Primary</th>
<th>Secondary</th>
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<tbody>
<tr>
<td>Overproduction</td>
<td>Familial hypertriglyceridaemia</td>
<td>Insulin resistance (eg. obesity, exogenous oestrogens, glucocorticoid excess)</td>
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<tr>
<td></td>
<td>Familial combined hyperlipidaemia</td>
<td>Alcohol</td>
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<tr>
<td>Decreased clearance</td>
<td>Primary lipoprotein lipase deficiency (rare)</td>
<td>Insulin deficiency Hypothyroidism</td>
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<tr>
<td>(impaired lipoprotein lipase activity)</td>
<td></td>
<td>Uraemia</td>
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Answer 2

When chylomicron and VLDL particles accumulate, the plasma becomes cloudy and can result in lipaemia retinalis where retinal blood vessels take on a whitish tinge. Lipaemia can precipitate abdominal pain and pancreatitis which can be life threatening. Episodes of abdominal pain and pancreatitis can be recurrent if the hypertriglyceridaemia is not controlled. Abdominal pain or pancreatitis associated with hypertriglyceridaemia requires hospital admission and emergency intravenous insulin infusion to control excess production and increase peripheral removal.

Answer 3

Fortunately Sarah does not have pancreatitis (yet), however the same approach applies – reduce production and increase clearance by controlling her metabolic abnormality with oral hypoglycaemic agents and insulin if needed. Lifestyle will be important as eating and drinking less, and walking more will decrease her weight, waist and insulin resistance.

Increasing insulin activity by increasing insulin levels and/or sensitivity will decrease triglyceride production and increase peripheral removal. Decreasing ethanol intake will decrease hepatic triglyceride production. The addition of hypolipidaemic agents will probably be necessary as well (fibrates and possibly nicotinic acid). In Sarah’s case, changing her lifestyle is likely to be an absolute requirement for controlling or not controlling triglyceride levels. Sarah should appreciate that these ‘lumps’ potentially can occur anywhere on her body and if she does not control her blood fats she is at high risk of a life threatening complication (pancreatitis). She may also be impressed by the potential cosmetic and comfort benefits of getting rid of the lumps and becoming a little trimmer.

Conflict of interest: none declared.

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