Clinical Snapshot:

Making sense of Autonomic Neuropathy

M S Kamaruddin
Consultant Physician
South Tees NHS Foundation Trust

Diabetic autonomic neuropathy

- Classified as clinical or subclinical based on presence or absence of symptoms
- Significant morbidity and may lead to increased mortality
- Prevalence is variable
- Frequently coexist with peripheral neuropathy
- Other causes of autonomic neuropathy needs to be excluded

Diabetic autonomic neuropathy

- Not easy to recognise
  - Wide spectrum of symptoms/presentation
- Difficult to treat
  - Best to avoid
  - Once established – aim to slow progression
  - Treatment options are limited with lack of evidence based
  - Treatment strategy – customise to patients presenting problem

Main risk factors

- Poor glucose control
- Elevated triglyceride levels
- Elevated BMI
- Smoking
- Hypertension
- Duration of diabetes

Eurodiab study

System	Symptoms
Cardiovascular	Postural hypotension Postprandial hypotension Resting tachycardia Silent myocardial infarct
Gastrointestinal	Oesophageal motility disorder – reflux Gastroparaesis – nausea, vomiting, bloated Constipation, Diarrhoea
Genitourinary	Bladder dysfunction Sexual dysfunction
Sudomotor	Gustatory sweating
Neuroendocrine response to hypoglycaemia	Reduced glucagon secretion Delayed catecholamine response
Abnormal pupilary response	Visual burring, impaired adaptation to ambient light

Case

- 28 year old female
- T1DM since the age of 7 years
  - Stable retinopathy with previous laser therapy
  - Microalbuminuria
- On basal bolus regime (Glargine/Novorapid)
  - ACE inhibitor, statin, OCP
- Longstanding poor control – HbA1c 10%
  - Avoids tight control due to fear of hypos
  - Previous history of multiple severe hypoglycaemia
    - does not drive
- Works as a chef

Case

- Lately having recurrent hypos
  - despite reducing her basal & meal time insulin doses
- Also complaining of nausea with intermittent vomiting
  - symptoms worse with big meals
- Weight loss – unintentional
- Clinical examination unremarkable
  - Low BMI
  - injection sites normal
- Does not monitor BG regularly

Case

- Differential diagnosis
    - Weight loss with upper GI symptoms ? Malignancy
    - Coeliac disease
    - Not taking her insulin regularly – catabolic state

Case

- Investigations
  - Coeliac antibodies negative
  - Synacthen test normal
  - Renal function normal
  - Thyroid function test normal
  - CGMS indicates frequent hypos post meals
  - Gastroscopy and duodenal biopsy normal

Case

- Suggested treatment
  - Started on Domperidone 10mg tds
  - Switch Novorapid to Humulin S before meals
    - If despite switch over continues to have hypo then suggest taking Humulin S after meal
  - Dietetic input
    - Small and frequent meals
    - Review carbohydrate counting skills

Case

- Did not attend outpatient clinic
- 6 weeks later admitted via A&E with DKA
  - Persistent vomiting and missed her basal insulin
  - More weight loss
  - Also developed intermittent diarrhoea over the past 2 weeks
    - Took over the counter loperamide - little success

Case – Clinical diagnosis

Severe Gastroparaesis made worse by ketoacidosis

Probable abnormal small bowel motility

+/- bacterial overgrowth causing intermittent diarrhoea and weight loss

Case

- Intractable vomiting requiring continuous infusion of antiemetic subcutaneously via syringe driver
- Did not tolerate NG feed which lead to NJ feeding tube insertion
- Subsequently needed PEJ insertion to establish feeding

Case

- Lengthy hospital stay
- Started to put on weight with specialist dietetic input
- Went on to insulin pump to fine tune insulin requirement and was able to reduce recurrent hypoglycaemia

Take home message

- Erratic blood glucose may indicate underlying gastroparaesis especially with postprandial hypoglycaemia
- Up to 50% of long-standing diabetics may have varying degree of delayed gastric emptying
- Intensive glycaemic control is key in prevention and slowing of progression of autonomic neuropathy
- The diagnosis of diabetic autonomic neuropathy is one of exclusion and warrants early specialist input
- Mortality rate in patients with diabetic autonomic neuropathy is three times higher than in diabetic patients without autonomic involvement