Proteinuria in Diabetes

Dr Natalie Brearley
17 yo female

Å Proteinuria
Å DM
17 yo female

- Proteinuria persistent
  - Early morning albumin >400mg/L
  - Persistent UPCR of 280mmol/l
17 yo female

Diabetes

- Presented 2 years ago with
  - Polydipsia
  - Polyuria
  - Polyuria
  - Weight loss
  - Tiredness
- Significant ketosis, but not in ketoacidosis
- Putative diagnosis of Type I diabetes, but islet cell antibody negative, GAD negative
PMH

• Chronic knee, lower abdominal & back pain

• Gynaecologist, heavy periods

• Orthopaedic surgeon, ?Osgood-Schlatter disease

• Rheumatologist, noted persistently raised ESR 16-17, no inflammatory arthritis

• Gastroenterologist, constipation, no inflammatory bowel disease
17 yo female

Å 2\textsuperscript{nd} centile height (145.5cm)
Å 0.4\textsuperscript{th} centile weight (43kg)

Å Mother, father, brother no significant medical problems
Investigations

• BP 112/71 mmHg
• Urea 5.5mmol/L
• Creatinine 57umol/L
• Albumin 28g/L
• HbA1c 45mmol/L, said to be risk of hypoglycaemia if <48
Reported as

- Focal segmental glomerulosclerosis
- Early diabetic nephropathy
- Clinicopathological correlation required
Several weeks later...

- Mitochondrial DNA mutation m.3243A>G, transfer RNA for leucine
- Maternally Inherited Diabetes and Deafness
Maternally Inherited Diabetes and Deafness (MIDD)

- Described in 1992
- 3 major features not always present
MIDD diabetes

- ~1% diabetes
- Mostly presents as type II
- Ketoacidosis in ~8%
- Penetrance 85%
- Reduced insulin secretion
  - Oxidative mitochondrial metabolism is important in regulation of insulin production in Beta cells
MIDD deafness

Â~75% experience sensorineural deafness - cochlear
MIDD renal

- Can precede diabetes & deafness or be the sole manifestation
- Often presents as proteinuria in early adulthood
  - But can be later as progressive renal failure
  - Or earlier, FSGS reported in children
MIDD endocrine

GHRH deficiency > short stature
MIDD GI

Å Constipation
Å Malabsorption
MIDD myopathy

- Lower limb pain
Also...

Å FSGS NGS Chip (Bristol)
Å Heterozygous mis-sense variation of NPHS1
c.2746G>T; p.(ala916ser)
Å 0.3 % population
Thank-you & Questions?

References: