Not Every Gestational Diabetes is Mellitus!

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CASE HISTORY

- 21 year old primigravida
- 3 days post-partum
- Traumatic labour / Instrumental delivery
- Severe post-partum haemorrhage - 3 litres blood loss
- 5 units blood transfusion and 2 units FFP
- No problem with Lactation / Breast feeding

ENDOCRINE REFERRAL

- Polyuria and polydipsia
- Average urine output 500 ml / hour (10-12L / day)
- Drinking around 10 jugs of water a day
- Bedside observations were stable
- Capillary blood glucose level was 4.7 mmol/L

PRE-PARTUM HISTORY

- 2 weeks history of polyuria and polydipsia prior to labour, but patient thought it was pregnancy-related and never thought to seek any medical advice for it.

INVESTIGATIONS

Tests	Results	Normal values
Lab glucose	4.9 mmol/L	3.9 – 6.1
Sodium	146 mmol/L	132 – 142
Potassium	3.9 mmol	3.5 – 5.5
Urea	6.4 mmol/L	2.5 – 7.5
Creatinine	78 Mmol/L	46 - 92
Corr. Calcium	2.36 mmol/L	2.2 – 2.6
TSH	2.63 mIU/L	0.25 – 4.5
Cortisol	557 nmol/L	200 - 650
Plasma osmolality	296 mosm	275-295
Urine osmolality	78 mosm	300 - 1000
Urinary sodium excretion	24 mmol	
Prolactin	2630 mU/L	102 - 496

DIAGNOSIS

Gestational Diabetes Insipidus (GDI)

- Symptoms during the 3rd trimester: polyuria and polydipsia
- Passing a large volume (>3L/24h) of diluted urine (osmolality <300 mOsmol/kg)

MANAGEMENT AND RECOVERY

- 1 mcg IM-DDAVP: Good response
- Allowed to drink freely
- Strict monitoring of fluid balance and U&Es
- Oral Desmopressin (only for one day)
- Full recovery on day 5 post-partum
- Urine output reduced to 2420 ml/24h
- Serum sodium down to 136 mmol/L
- Discharged - GP follow up in 2 weeks: no symptoms

GESTATIONAL DIABETES INSIPIDUS

- A rare pregnancy-related endocrinopathy
- Affects 1 in 30,000 pregnancies
- First reported cases by the Italian E. Momigliano in 1929 (31 cases of pregnancy-related diabetes insipidus)
- May occur in an apparently healthy woman, during any stage of pregnancy, usually during the 3rd trimester
- Excessive placental vasopressinase in 3rd trimester which breaks down ADH
- Transient, resolves after delivery of the placenta (may last around 4-6 weeks following labour)
- Can be associated with pre-eclampsia, HELLP syndrome and acute fatty liver
- May recur in subsequent pregnancies
- An abrupt change in the voiding pattern during the last trimester of pregnancy manifesting as hypotonic polyuria, and excessive water intake represent the hallmark of the disease
- Most cases can be treated with desmopressin
- Hydrochlorthiazide is the 2nd line if resistant to DDAVP
- If untreated can lead to significant morbidity and mortality (rapid onset hypernatraemia leading to central pontine demyelination and baby's death)

CONCLUSION AND LEARNING POINTS

- This was an unusual case of Gestational Diabetes Incipidus
- Frequently under-diagnosed because polyuria is often considered normal during pregnancy
- Excessive placental vasopressinase in 3rd trimester which breaks down ADH
- Can be associated with pre-eclampsia, HELLP syndrome and acute fatty liver
- It's very important to diagnose and treat GDI early because it can lead to significant morbidity and mortality (rapid onset hypernatraemia leading to central pontine demyelination and baby's death).

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