CASE REPORT

Importance of a thorough drug history in presurgical patients

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SUMMARY

A 72-year-old woman was admitted for a routine elective total knee replacement. By day 1 postoperative, she became hyponatraemic following an Addisonian crisis, leading to an admission into the intensive therapy unit (ITU). It was later during this stay in the ITU and on a retrospective drug history review that she was found to have taken clobetasol, a high strength topical steroid cream over the past 2 years. The authors alert the reader to the importance of specially asking patients about their use of current or recent topical steroid creams as they may not always volunteer this information. Sudden withdrawal of steroid supplementation in these patients in the preoperative period may result in catastrophic consequences.

BACKGROUND

This case highlights the importance of taking a thorough drug history when preassessing patients prior to surgery, especially noting the use of any topical steroid creams. Failure to do so may result in potentially fatal consequences from adrenal suppression following the stress response of surgery.

CASE PRESENTATION

A 72-year-old woman was admitted for a routine elective total knee replacement. She had suffered from arthritis in her knee for a number of years which had been causing her significant pain and restrictions in her mobility.

Her medical history includes ischaemic heart disease (coronary stent inserted 12 years previously); hypothyroidism (well controlled); chronic back problems for many years and atopic dermatitis. She had been admitted to hospital 4 months previously, having been diagnosed with pneumonia and a transient ischaemic attack; however, these problems had been completely resolved by the time of her surgery. She did also have a sodium drop at this time (122 mmol/L), but this did not result in an Addisonian crisis.

She admitted taking the following medication at preassessment: omeprazole, paracetamol, simvastatin, levothyroxine, lisinopril, aspirin and bisoprolol. Her allergies included penicillin, diclofenac and ramipril, all of which cause a swelling, and made her unwell. It was also apparent after her procedure that she had been applying a potent topical steroid cream (clobetasol 0.05%) over a wide area of her legs for over 2 years for her atopic dermatitis, which was not volunteered at her preadmission clerking.

She lived alone in a house, was independent of activities of daily living (ADLs), was a non-smoker and very occasionally drank alcohol.

Her preadmission bloods were essentially normal, apart from a slightly low sodium (129 mmol/L) unexplained by renal dysfunction or diuretics.

Her elective total knee arthroplasty procedure was routine and uncomplicated. Intravenous antibiotics were given at induction according to local protocol. She had 8 mg of dexamethasone for nausea and vomiting prophylaxis also. The tourniquet time was 45 min. She was discharged to the ward after an uneventful spell in theatre recovery.

Day 1 postoperative, she developed a rapidly deteriorating hyponatraemia which had dropped from 122 mmol/L at 7:00 to 111 mmol/L by 16:00 with symptoms of nausea, vomiting and confusion. Her Glasgow Coma Scale (GCS) had dropped to 10 (eye 2, verbal 3, motor 5), and she was subsequently admitted to the intensive therapy unit (ITU) where she was intubated under rapid sequence induction. An arterial line was inserted and nasogastric (NG) feed was started.

Her sodium was slowly increased via intravenous fluids, and she initially struggled to be weaned off the ventilator, continuing to show confusion. A CT of the head was requested which showed no abnormality.

Day 4 postoperative, she had a short synacthen test which ruled out an Addisonian crisis. An adrenocorticotrophic hormone (ACTH) level was taken.

After a review by the endocrinology team, a course of oral hydrocortisone was started via her NG feeding tube, after which the patient was noticed to be markedly more awake after only 30 min.

INVESTIGATIONS

- Day 1 postoperative: serum sodium 111 mmol/L, potassium 4.2 mmol/L, urea 6.1 mmol/L, creatinine 66 mmol/L, albumin 26 mmol/L, haematocrit (HCT) 0.262 mmol/L, thyroid-stimulating hormone (TSH) 0.3 mmol/L, thyroxine (T4) 20 mmol/L
- Day 3 postoperative: CT of the head no active disease (NAD)
- Day 4 postoperative: short synacthen test (0 min=234, 30 min=405)
- Day 5 postoperative: urine osmolality 642 mmol/kg; random urine Na 98 mmol/L; serum osmolality 242 mmol/kg

DIFFERENTIAL DIAGNOSIS

- Addisonian crisis secondary to idiopathic Cushing's syndrome

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- ▶ Syndrome of inappropriate antidiuretic hormone secretion (SIADH)
- ▶ Diabetes insipidus
- ▶ Cerebral vascular accident causing the cerebral salt wasting syndrome

TREATMENT

While in the ITU, she was administered slow intravenous 0.9% normal saline and oral hydrocortisone subsequently via her NG feeding tube. This was later converted to a reducing regime.

OUTCOME AND FOLLOW-UP

The patient went on to make a full recovery and was subsequently discharged from hospital on day 12 postoperative. She was booked to be reviewed in outpatients at 6 weeks postoperative.

DISCUSSION

This patient had developed iatrogenic Cushing's syndrome as a result of her prolonged use of high-strength topical steroid creams. This resulted in decreased production of ACTH at the pituitary gland. Subsequent adrenal atrophy occurs at the zone of glomerulosa in the adrenal cortex. As a result of the stress response from surgery, the body's need for steroid production, for example, for gluconeogenesis, increases. This results in an Addisonian crisis as the body is unable to keep up with the demand.

As clinicians, we cannot always rely on the patient's history. One should seek to ask more direct questions to ascertain the use of topical steroid creams (either prescribed or over-the-counter) as well as cross-refer the general practitioner (GP) notes.

Clobetasol is considered a very strong topical cream. Cushing's syndrome has also been described in four patients using clobetasol cream.¹

The authors of a previous case series showed that the metyrapone test should be employed in patients receiving long-term clobetasol propionate cream as this examines the hypothalamus-pituitary axis and that glucocorticoid supplementation should be given during episodes of stress, such as infections or surgery, and given for at least 4 months after cessation.²

Learning points

- ▶ Take a thorough drug history.
- ▶ Ask specifically about topical steroid creams.
- ▶ The metyrapone test should be employed in all patients taking potent steroid creams as routine preoperatively.

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