

References

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3. Phillips P. Insulins in 2002. *Aust Prescr* 2002;25:29-31.

Further reading

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Conflict of interest: none declared

Self-test questions

The following statements are either true or false (answers on page 105)

5. In lean young patients with type 2 diabetes, insulin therapy should be delayed as long as possible.
6. Oral hypoglycaemic drugs should be stopped when a patient with type 2 diabetes starts insulin.

Patient support organisation

Diabetes Australia

Diabetes Australia is a federation of twelve organisations – the eight State and Territory Associations of Diabetes Australia, the Australian Diabetes Society, the Australian Diabetes Educators Association, the Kellion Diabetes Foundation and The Diabetes Research Foundation – Western Australia.

The State and Territory associations (see below) and their shopfronts provide ongoing support as well as products, services, information and education for people with diabetes and their families.

Contacts

National office

Diabetes Australia
GPO Box 3156 CANBERRA ACT 2601
Phone: 1300 136 588 (local call cost)
Fax: (02) 6330 1535
E-mail: admin@diabetesaustralia.com.au
Web site: www.diabetesaustralia.com.au

Australian Capital Territory

Grant Cameron Community Centre
27 Mulley Street HOLDER ACT 2611
PO Box 3727 WESTON ACT 2611
Phone: (02) 6288 9830
Fax: (02) 6288 9874
E-mail: diab.act@diabetes-act.com.au
Web site: www.diabetes-act.com.au

New South Wales

26 Arundel Street GLEBE NSW 2037
GPO Box 9824 SYDNEY NSW 2001
Phone: (02) 9552 9900; 1300 136 588 (local call cost)
Fax: (02) 9660 3633
E-mail: info@diabetesnsw.com.au
Web site: www.diabetesnsw.com.au

Queensland

Cnr Merivale & Ernest Streets
SOUTH BRISBANE QLD 4101
GPO Box 9824 BRISBANE QLD 4001
Phone: 1300 136 588 (local call cost)
E-mail: info@daq.org.au
Web site: www.daq.org.au

Northern Territory

Shop 2 Tiwi Place TIWI NT 0810
PO Box 40113 CASUARINA NT 0811
Phone: (08) 8927 8488
Fax: (08) 8927 8515
E-mail: info@diabetesnt.org.au

Western Australia

48 Wickham Street EAST PERTH WA 6004
PO Box 6097 EAST PERTH WA 6892
Phone: (08) 9325 7699
Fax: (08) 9221 1183
E-mail: info@dawa.asn.au

South Australia

159 Sir Donald Bradman Drive
HILTON SA 5033
GPO Box 1930 ADELAIDE SA 5001
Phone: (08) 8234 1977
Fax: (08) 8234 2013
E-mail: diabetessa@diabetessa.com.au
Web site: www.diabetessa.com.au

Victoria

570 Elizabeth Street MELBOURNE VIC 3000
PO Box 206D MELBOURNE VIC 3001
Phone: (03) 9667 1777
Fax: (03) 9667 1778
E-mail: mail@dav.org.au
Web site: www.dav.org.au

Tasmania

88 Bathurst Street HOBART TAS 7000
GPO Box 827 HOBART TAS 7001
Phone: (03) 6234 5223
Fax: (03) 6234 5828
E-mail: mail@datas.org.au
Web site: www.datas.org.au

Medicinal mishap

Tramadol and hyponatraemia

Prepared by Robin Hunter, Rehabilitation Physician, Brighton, Vic.

Case

A 76-year-old woman with a past history of hypertension, compression fracture of the lumbar vertebrae, diverticulitis and leg cramps was admitted to hospital with a Colles' fracture. Her usual medications were perindopril 2 mg in the morning, quinine sulfate 300 mg at night, ranitidine 300 mg at night, calcium carbonate at night and risedronate 5 mg daily. Her sodium on admission was 135 mmol/L.

The fracture was reduced under an arm block and she was commenced on tramadol 50 mg four times daily for pain control.

The patient was transferred to a rehabilitation hospital nine days later. On admission, her sodium was mildly reduced at 129 mmol/L. Her sodium continued to drop over the following seven days, despite fluid restriction, to 122 mmol/L. Her other electrolytes were within normal limits. Clinically she was euvoelaemic. Serum osmolality was low at 256 (280–300), suggesting inappropriate antidiuretic hormone (ADH) secretion. Tramadol was ceased and her sodium returned to normal over four days.

Comment

Tramadol is an analgesic which stimulates the same receptor as morphine and other opioids.¹ It also inhibits noradrenaline and serotonin reuptake potentially resulting in increased concentrations of serotonin and noradrenaline.

It has been well documented that selective serotonin reuptake inhibitors (SSRIs) cause hyponatraemia (defined as a sodium concentration less than 135 mmol/L) particularly in the elderly, females and in the initial stage of therapy.^{2,3} This is thought to be due to increased serotonin levels stimulating the release of

vasopressin (ADH).⁴ Vasopressin causes fluid retention resulting in expansion of extra cellular volume and lowered sodium levels.

Tramadol, by increasing serotonin levels, may result in hyponatraemia through a similar mechanism.

I have had four elderly patients who have taken tramadol for pain control after fractures and have developed hyponatraemia, which has been corrected on cessation of tramadol. One of these cases occurred when tramadol was added to a patient already on citalopram, an SSRI.

Recommendations

Tramadol use should be reviewed and, if possible, the dose reduced or the drug ceased altogether after 48–72 hours. Sodium concentrations should be monitored when prescribing tramadol particularly in the elderly and those taking other medications, such as SSRIs and diuretics, which also predispose to hyponatraemia.

References

1. Kaye K. Trouble with tramadol. *Aust Prescr* 2004;27:26-7.
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Editor's note:

The Adverse Drug Reactions Advisory Committee has received 14 reports of hyponatraemia in patients taking tramadol.