

## *PRESS RELEASE*

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### **One in five patients on commonly prescribed diuretics have abnormal sodium and potassium levels**

One in five patients taking diuretics commonly prescribed for high blood pressure or heart conditions end up with reduced sodium and potassium levels, according to a study published in the January issue of the **British Journal of Clinical Pharmacology**.

Yet recent evidence suggests that perhaps as few as a third of patients on the drugs – used by one in eight adults – have their electrolyte levels tested, despite the fact that reduced levels can lead to a wide range of health problems.

A team from Queen's Medical Centre and the University of Nottingham in the UK reviewed the records of more than 32,000 adults from six general practices in the East Midlands.

They found that just under 12 per cent had received at least one prescription for thiazide diuretics between 1990 and 2002, but only 32 per cent had had their sodium and potassium levels recorded electronically. The drug most commonly prescribed was bendroflumethiazide (bendrofluazide).

21 per cent of those who had been tested had levels that fell below the normal range.

“In a small number of patients reduced sodium and potassium levels – often referred to as electrolyte levels - can be severe enough to require hospital admission, especially if they are elderly” says lead author Dr Jennifer Clayton.

“In milder cases they can make people feel below par, cause general weakness and tiredness and sometimes interfere with the normal rhythm of the heart.

“Severe loss of sodium can make it difficult for people to maintain their blood pressure at a normal level, causing dizziness, confusion and an increased risk of falls in older people.

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“And loss of potassium can make people more susceptible to the side effects of other drugs they are taking for heart conditions.”

Other findings included:

- Low sodium levels were much more common than low potassium levels. Of the 196 patients who had low electrolyte levels, 66 per cent had low sodium levels and 40 per cent had low potassium levels. A small number of patients had both.
- Nine per cent of the 196 patients who showed low levels had severe electrolyte disturbances – with ages ranging from 47 to 93. Ten of these were taken off the medication, but seven – including a 90 year-old male – were not.
- Patients who had severe electrolyte disturbances had taken the medication for three to 90 months before their levels were checked.
- 72 per cent of the 130 patients with low sodium levels were mild cases, 21 per cent were moderate and seven per cent were severe. Just over 80 per cent continued taking the drug, including a third of the severe cases.
- Patients taking thiazide diuretics ranged from 19 to 99 years-old and nearly half were between 60 and 79.
- 90 per cent were receiving the currently recommended dose of 2.5mg a day, but 10 per cent were receiving a higher dose.
- The average age of patients tested for electrolyte levels was 69, while the average age of untested patients was slightly lower at 67.
- Only 30 per cent of females had their electrolytes tested, compared with 36 per cent of males.

“Patients taking higher doses of thiazide diuretics are at particular risk of low potassium levels and elderly patients are at a particular risk of low sodium levels” concludes co-author Professor Ian Hall.

“This points to the need for prescribing low doses of thiazide diuretics and monitoring sodium and potassium levels to reduce the risk and increase the detection and treatment of these electrolyte abnormalities.

“Despite the fact that more than a fifth of the patients we looked at suffered from reduced electrolyte levels, less than a third of the people given this commonly used type of drug appear to have had tests to check their levels.”

The authors stress that people should never stop taking prescribed medicine without first seeking advice from their GP.

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“In our view, if people are on thiazide diuretics, it would be sensible for them to ask their doctor about routine testing for sodium and potassium levels next time they have an appointment or go to the surgery for a medication review” adds Professor Hall.

“This is particularly important if people have been feeling unwell, are elderly, taking other heart medication or are on higher doses of the drug.”

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#### Notes to editors

- Thiazide diuretic prescription and electrolyte abnormalities in primary care. Clayton, Rogers, Blakey, Avery and Hall. University Hospital, Queen's Medical Centre, Nottingham, UK. **British Journal of Clinical Pharmacology**. Volume 61.1, pages 87-95 (January 2006).
- The **British Journal of Clinical Pharmacology** is published monthly on behalf of the British Pharmacological Society by Blackwell Publishing. It contains papers and reports on all aspects of drug action in humans: invited review articles, original papers, short communications and correspondence. The Journal, which was first published in 1974, enjoys a wide readership, bridging the gap between the medical profession, clinical research and the pharmaceutical industry.

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