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Phosphate binders and timing of levothyroxine administration

Sir,

Recently, we diagnosed hypothyroidism in one of our haemodialysis patients, a 62-year-old woman with chronic tubulointerstitial nephritis. She had severe symptoms and her TSH was 297 mU/l (reference range 0.30–4.20 mU/l). Levothyroxine was prescribed and administered with breakfast along with amiodipine 5 mg, enalapril 5 mg, esomeprazole 20 mg, paracetamol 1000 mg, sevelamer 3200 mg and vitamins B. The dose was gradually increased to 150 μg daily. After 3 months of treatment, the clinical response was still unsatisfactory and TSH was 196 mU/l. Then, the patient was instructed to take levothyroxine at night, at least 4 h after any other medication. Three weeks later, she felt much better and the TSH level had decreased to 19 mU/l. Levothyroxine treatment was continued according to this schedule at the dose of 175 μg daily. Nine months later, routine testing again revealed a high TSH level (76 mU/l). This was right after a hospital stay due to arteriovenous (A-V) fistula problems during which levothyroxine was given with the morning medications. After switching back to levothyroxine administration at night, the TSH level rapidly normalized.

Most likely, the absorption of levothyroxine was disturbed by a simultaneously administered medication. It is well known that many substances interfere with the absorption of levothyroxine, e.g. the phosphate binders aluminium hydroxide [1] and calcium carbonate [2]. Since phosphate binders have certain characteristics in common, such as positive charge, we assumed that sevelamer was the culprit. This assumption was supported by the Swedish Pharmacopoeia [FASS (www.fass.se)], according to which hypothyroidism has been reported in patients who ingested sevelamer and levothyroxine at the same time (reports not found by a MEDLINE search with the key words sevelamer and levothyroxine). Moreover, sevelamer binds bile acids. Other bile acid sequestrants have been reported to disturb the absorption of levothyroxine [3].

Calcium preparations are widely used as phosphate binders in uraemic patients. However, the fact that calcium interferes with the absorption of the frequently-prescribed levothyroxine does not seem to have caught the attention of the nephrological community. This may be explained by the paucity of reports, the first prospective study being published only 7 years ago [2]. In addition, adjustments of the levothyroxine dose in response to routine TSH analyses probably prevents severe clinical consequences in most cases.

In conclusion, the present case supports the notion that sevelamer binds levothyroxine in the intestinal tract. If this hypothesis proves to be correct, we now know of three phosphate binders that interfere with the absorption of levothyroxine. This raises the question whether the same applies to all phosphate binders, including lanthanum carbonate. It seems prudent to administer phosphate binders and levothyroxine with an interval of several hours.

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Sheathless or ‘over-the wire’ technique for tunneled cuffed catheter insertion

Sir,

We read with great interest the article by Polakovič et al. [1] regarding the insertion of tunneled cuffed catheters without using a peel-away sheath. This technical note is very helpful, as increasing numbers of nephrologists are performing these