Vecf, or ideally but less practically plasma volume, should become part of an anaemia management protocol.

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Hypothyroidism and resistance to human recombinant erythropoietin

Sir,

Many possible causes of resistance to human recombinant erythropoietin (rh-EPO) have been reported in patients with renal failure [1]. However, some factors remain controversial. We report a haemodialysis patient with a diminished response to rh-EPO in association with hypothyroidism.

The patient was a 62-year-old female who was treated with regular haemodialysis since 1993. She had a past medical history of primary hypertension and pulmonary tuberculosis. During 5 years, haemoglobin level ranged between 10.2 and 11.7 g/dl with rh-EPO alpha treatment of 9000 IU/week. In 1998, the patient developed secondary hyperparathyroidism (iPTH 1845 pg/ml) and worsened anaemia (Hb 9 g/dl) despite increasing doses of rh-EPO up to 15 000 IU/week. Successful subtotal parathyroidectomy was performed in October 1998 together with subtotal thyroidectomy because of nodular goiter. Haemoglobin level remained unchanged with normochromic, normocytic erythrocytes and normal leukocytes and platelets. All usual causes of epoietin resistance were ruled out, such as infection, malignancy, iron or vitamin deficiency states, aluminum overload and underdialysis. A few months later, hypercholesterolaemia appeared and subclinical hypothyroidism was diagnosed. Thyroid-stimulating hormone was >50 mIU/l, free triiodothyronine 4.4 pmol/l and free thyroxine 9 pmol/l. Thyroxine replacement therapy was started in April 1999 and the dose was progressively increased to 225 μg/day. Normalization of serum thyroid hormone levels was accompanied by improved response to epoetin (Figure 1). Haemoglobin level increased to 11.5 g/dl with a parallel reduction of rh-EPO dose to 6000 IU/week.

These findings, as in two previous reports [2,3], strongly support the hypothesis that hypothyroidism may contribute to epoietin resistance in chronic haemodialysis patients.

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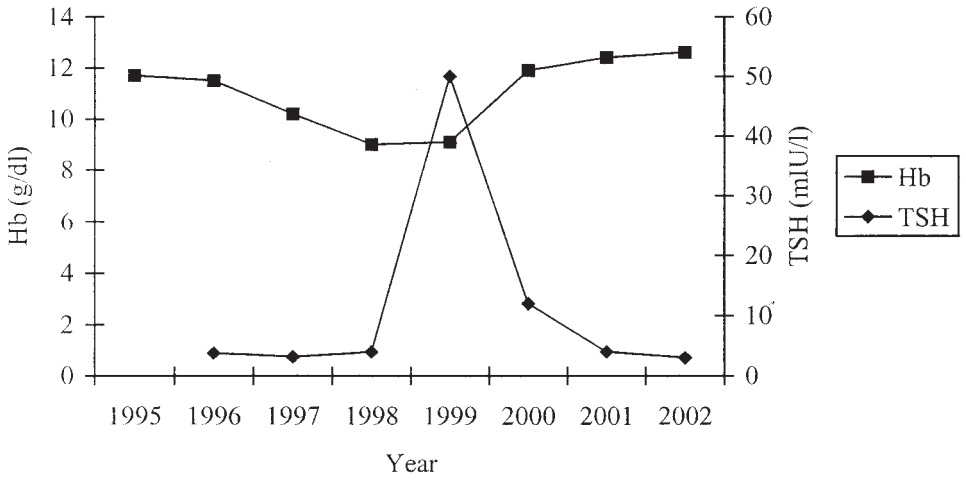

Fig. 1. Evolution of haemoglobin level and thyroid stimulating hormone.

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The use of androgens in anaemia resistant to erythropoietin and i.v. iron in patients with heart and renal failure

Sir,

We read with interest the recent thorough review of use of androgen therapy in the management of renal anaemia [1]. We have been interested in the role of erythropoietin and i.v. iron in the correction of the anaemia seen in patients with congestive heart failure (CHF) [2–6]. Most of these patients also have chronic kidney insufficiency (CKI). In 223 such cases, we attempted to correct their anaemia with the combination of up to 10 000 IU erythropoietin (EPO) given subcutaneously once weekly, and i.v. Venofer (ferric sucrose) given once weekly. We gave the Venofer until either the haemoglobin (Hb) reached target, the per cent transferrin saturation reached 35% or the serum ferritin reached 700 ug/l, whichever came first. We encountered 19 cases (8.5%) (mean age 74.0 ± 6.9 years) (14 males/five females) that failed to reach a target Hb of 13 g/dl over at least 4 months of this treatment, the Hb increasing from a mean of 10.1 ± 1.2 to 11.1 ± 0.8 g/dl. In these 19 cases we administered nandrolone decanoate (ND) 200 mg (one ampoule) once weekly i.m. while continuing the EPO–Fe combination until the target Hb was reached. One male patient developed a skin rash within 24 h after the first dose and was removed from the study. In the remaining 18 cases the mean Hb increased over the next 3 months from 11.1 ± 0.8 to 13.3 ± 0.8 g/dl ($P < 0.01$). All the patients reached the target Hb by 3 months after ND treatment was started. None of the 18 patients, male or female, complained of any side effects and most noted an increase in appetite. There were no significant changes in serum cholesterol, HDL, LDL, triglycerides, liver function tests or blood pressure. Subsequently the patients no longer required further ND and were maintained on EPO and i.v. Fe as needed. We agree with Navarro that in patients with anaemia and CKI who do not reach target Hb with large doses of EPO and i.v. Fe the short-term addition of ND may rapidly correct the anaemia with minimal side effects. ND seems to be a useful adjuvant in patients receiving EPO for the correction of the anaemia of renal and heart failure who are resistant to therapy.

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Severe anaphylactic reaction in a haemodialysis patient after administration of reviparin

Sir,

Low-molecular weight heparins (LMWHs) are widely used during haemodialysis. We recently observed a patient who developed a severe allergic reaction after administration of an LMWH (reviparin). The patient, a 52-year-old women suffering from end-stage renal disease caused by diabetic nephropathy, started haemodialysis in March 2003. She had a past history of hepatitis C with a severe anaphylactic reaction after administration of interferon-α. From the first haemodialysis session, she experienced serious respiratory problems which required treatment with aminophylline and oxygen. Dyspnoea, cough and wheezing occurred during the dialysis sessions, and she recovered completely after the attacks. Bicarbonate dialysis, 4 h per session, three times per week, with polysulfone dialysers (Fresenius®) was performed, with no re-use of dialyser. From March to May, reviparin was used as anticoagulant therapy. The patient had never used angiotensin-converting enzyme (ACE) inhibitors. The patient was switched to another polysulfone dialyser brand (Gambro®) after 1 month, but with no improvement in respiratory status. IgE was 588 kIU/l (normal range up to 114 kIU/l). There was no eosinophilia in the peripheral blood. In May 2003, nasal bleeding caused by hypertension occurred requiring posterior nasal tamponade. Her platelets were within the normal range, as were her coagulation parameters. She was then dialysed without reviparin and her overall status significantly improved. She had no respiratory problems. In July 2003, 45 days after the last episode of severe nasal bleeding, reviparin was introduced as anticoagulant therapy. Respiratory distress recurred, this time followed by bullous skin changes on the lower extremities. All symptoms disappeared after discontinuation of reviparin.

After searching the WHO databases and Medline, to the best of our knowledge, this is the first case of a haemodialysis patient who developed an anaphylactic reaction after administration of reviparin. Ueda *et al*. described an anaphylactoid reaction induced by dalteparin sodium in a haemodialysis patient [1]. We would like to warn colleagues that anticoagulation with LMWH in haemodialysis patients with a known allergic predisposition can cause serious anaphylactic reactions.