A weakness in our report is that we do not have multiple tests (i.e. serology) to exclude a STEC infection, only a standard stool culture. Furthermore, one could speculate that the finding of entroviral RNA is coincidental or from “leakage” of colonic virus into blood.

In support of our conclusion, enteroviruses are known to be able to infect colonic cells and endothelial cells, and damage both by either lytic or immunological mechanisms, the prerequisites for inducing HUS [4,5]. Furthermore our detection techniques are more sensitive [6,7] than the ones used earlier in studies [3].

Our case underlines the need for a large-scale epidemiological investigation of STEC-negative HUS cases using the most recent sensitive diagnostic tests especially considering the poorer prognosis of STEC-negative cases [3].

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1. Siegler R, Oakes R. Hemolytic uremic syndrome: pathogenesis, treatment, and outcome. Curr Opin Pediatr 2005; 17: 200–204
2. Lynn RM, O’Brien SJ, Taylor CM et al. Childhood hemolytic uremic syndrome, United Kingdom and Ireland. Emerg Infect Dis 2005; 11: 590–596
3. De Petris L, Gianviti A, Caione D et al. Role of non-polio enterovirus in pediatric haemolytic uremic syndrome. Pediatr Nephrol 2002; 17: 852–855
4. Huber SA, Job LP, Woodruff JE. In vitro culture of Coxsackievirus group B, type 3 immune spleen cells on infected endothelial cells and biological activity of the cultured cells in vivo. Infect Immun 1984; 43: 567–573
5. Zanone MM, Favaro E, Conalda PG et al. Persistent infection of human microvascular endothelial cells by coxsackie B viruses induces increased expression of adhesion molecules. J Immunol 2003; 171: 438–446
6. Terliatskaia-Ladwig E, Metzger C, Schalasta G et al. Evaluation of enterovirus serological tests IgM-EIA and complement fixation in patients with meningitis, confirmed by detection of enteroviral RNA by RT-PCR in cerebrospinal fluid. J Med Virol 2000; 61: 221–227
7. Romero JR. Reverse-transcription polymerase chain reaction detection of the enteroviruses. Arch Pathol Lab Med 1999; 123: 1161–1169
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A proposal of the simple guide regarding the conversion ratio from epoetin to darbepoetin alpha in treating haemodialysis patients with renal anaemia

Sir,

Darbepoetin alpha (darbepoetin), which has the longest half-time of all the erythropoiesis-stimulating agents (ESAs), is now used world-wide with many advantages for both the patient and the healthcare worker [1,2]. Several recent observations have suggested that in treating renal anaemia the conversion ratio from epoetin to darbepoetin according to the theoretically calculated ‘1 µg darbepoetin = 200 U epoetin’ rule (1:200 rule) leads to an overestimate of the required darbepoetin dose [1]. In particular, in a large-scale multicentre prospective study of 100 haemodialysis (HD) patients, Bock et al. concluded that, although the 1:200 rule is appropriate for lower epoetin doses (<5000 IU/week), a 1:250 to 1:350 conversion rule could be applied to the darbepoetin dose for patients converting from ≥5000 IU of epoetin per week [1]. I almost agree with their conclusion. But I think that a simpler guide regarding the conversion ratio according to the proceeding epoetin dose could be obtained from my experience of treating HD patients with darbepoetin for over 7 months in our clinic and I will attempt to propose the guide here.

In our clinic, 32 chronic HD patients underwent HD treatment two to three times a week in September 2007 and I took charge of all the patients at that time and remained in charge of them thereafter. Out of these patients 26 had been treated with between 750 and 9000 IU of epoetin alpha (epoetin) weekly for renal anaemia. I changed all these patients to darbepoetin from October, the 40th week in 2007. I estimated adequate initial dose of darbepoetin according to the 1:200 rule and 15, 20, 30 or 40 µg of darbepoetin was given once a week or every two weeks to these patients. My policy to treat renal anaemia is basically by the combination of ESAs and iron repletion without other medication, and the target level of haemoglobin (Hb) of the patients is almost between 10 and 11 g/dL according to the guidelines in 2004 of the Japanese Society for Dialysis Therapy [3]. Though several changes in the doses were required in many patients during about the first 12 weeks, almost adequate doses of darbepoetin needed to keep Hb stable could be obtained after that.

Those HD patients who developed anaemia from other causes than renal failure, such as intestinal bleeding, during the previous 12 weeks, were excluded for the evaluation.

Finally, 23 out of the 26 patients were eligible for this inquiry. I reviewed their clinical records and found the total epoetin doses of each individual patient from the 4 weeks between week 32 and 35 in 2007 as well as the Hb levels from weeks 32 and 36. In the same way, I got the total darbepoetin doses from the 13th to the 16th week in 2008 and got Hbs at the 15th and the 17th week. From these data, I calculated individual patient’s weekly doses of epoetin per 1.0 g/dL of Hb during the former 4 weeks and also calculated weekly darbepoetin doses per 1.0 g/dL of Hb during the latter 4 weeks. Then, I compared the doses of epoetin with the ones of darbepoetin for 1.0 g/dL of Hb in each individual patient to get the darbepoetin:epoetin conversion ratio.

Only one patient belonging to the epoetin > 6000 IU/week group showed darbepoetin:epoetin = 1:631, five patients in the 6000 IU/week ≥ epoetin > 4500 IU/week group showed a mean ratio of 1:303 (1:401, 318, 289, 282, 227), nine patients in the 4500 IU ≥ epoetin > 3000 IU group showed 1:251 (1:379, 356, 274, 260, 248, 243, 209, 151, 139) and eight patients in the 3000 IU ≥ epoetin group showed 1:169 (1:305, 265, 211, 146, 133, 113, 97, 81).

From these results, I think the individual difference in the adequate conversion ratio is very noticeable in the lower
epoetin doses (<3000 IU) group and we should take this fact into consideration at the change of the ESAs. Though I admit that in this inquiry the number of subjects is too small to reach a definite conclusion, I believe the results show a similar, but partially more remarkable, tendency to the one by Bock et al. [1]. And I should apply their conclusion to my original guide mentioned below, particularly in the higher epoetin doses group (>6000 IU/week) because of insufficient number of subjects.

I would like to propose a simple guide regarding the initial conversion ratio from epoetin to darbepeotin according to the proceeding epoetin dose in treating haemodialysis patients with renal anaemia. The ratios from epoetin to darbepeotin are 1:350 in proceeding epoetin doses > 6000 IU/week, 1:300 in 6000 IU/week ≥ epoetin > 4500 IU/week, 1:250 in 4500 IU/week ≥ epoetin > 3000 IU/week and 1:200 in epoetin ≤ 3000 IU/week. Of course, after the conversion, we should continue to control darbepeotin doses carefully, at least for several months, until a stable target Hb can be kept.

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Streptococcus vestibularis bacteremia following dental extraction in a patient on long-term hemodialysis: a case report

Sir,

Streptococcus vestibularis is a normal inhabitant of vestibules of the human oral cavity, and it has rarely been associated with human disease except that two cases of infectious endocarditis of the prosthetic valve [1,2], early neonatal sepsis and bacteremia in both cancer and rheumatic valve disease patients [3–5].

A 24-year-old woman, a known case of end-stage renal disease on haemodialysis was admitted with severe toothache, fever and malaise for a 2-week duration. Dental caries of the upper second molar were found by an expert dental surgeon, the carious tooth was removed and the pain was relieved. However, she developed fever and malaise again 2 days following tooth extraction.

She had no symptoms of infection of the upper or lower respiratory, gastrointestinal or genitourinary systems.

On physical examination her temperature was 38°C, heart rate was 92 bpm and blood pressure was 130/80 mmHg. Her oral hygiene was very poor. Cardiovascular system examination showed a grade 2/6 functional ejection systolic murmur at the lower left sternal edge. There were no clinical findings specific to bacterial endocarditis, either clinically or radiologically. (A trans-esophageal echocardiogram was done to rule out infective endocarditis.)

Her leukocyte count was 11 900 cells/L (92% neutrophils), CRP 55 mg/L and ESR 54 mm/h. We thought that the subclavian catheter (inserted because of a–v fistula disfunction) could have been infected but there were no exit-site features of infection. Vancomycin (1 g iv, three times a week, post-HD) was started immediately. Her temperature returned to normal 48 h later. The patient had no complaints of malaise 3 days later.

Two blood cultures grew gram-positive cocci. Subcultures grown on solid media showed S. vestibularis by identification kits (BBL Crystal Gram-Positive Identification Kits®). The microorganism was susceptible to vancomycin.

Two other blood cultures were taken on the 10th day of vancomycin therapy and they were negative. The patient remained on vancomycin therapy for 18 days, with neither fever nor malaise. On the 18th day the patient’s leukocyte count was 6900 cells (72% neutrophils), CRP was 5 mg/L and ESR was 21 mm/h. We stopped vancomycin therapy, and the patient was discharged.

Haemodialysis patients are liable to develop blood stream infections following surgical or medical procedures. To our knowledge, ours is the first case of bacteremia caused by S. vestibularis in a haemodialysis patient.

We chose vancomycin for treatment as it was shown to be susceptible to vancomycin elsewhere [5]. There is no recommendation for the duration of antibiotic therapy in the literature. We continued the treatment for 3 weeks and stopped therapy after blood cultures were negative.

We suggest that in patients with poor dental hygiene and history of orodental surgery, virulent streptococci should be considered.

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1Partridge SM. Prosthetic valve endocarditis due to Streptococcus vestibularis. J Infect 2000; 41: 284–285
2Doyuk E, Ormerod OJ, Bowler IC. Native valve endocarditis due to Streptococcus vestibularis and Streptococcus oralis. J Infect 2002; 45: 39–41
3West PW, Al-Sawan R, Foster HA et al. Specification of presumptive viridans streptococci from early onset neonatal sepsis. J Med Microbiol 1998; 47: 923–928