

# Using iron dextran to treat anaemia

From G. Hartley MRPharmS

I am writing about the article published in the June 2005 issue of *Hospital Pharmacist* entitled "Using iron dextran to treat iron-deficiency anaemia" (p224).

I have previously regarded the articles in *Hospital Pharmacist* to be well researched and comprehensive but this article was merely anecdotal. Although the author audited compliance with the original regimen using iron sucrose, no information was provided regarding the reasons patients failed to comply. An assumption was made that it was inconvenient for patients to attend the hospital three times a week for six weeks, but other factors could have accounted for non-attendance. A few suggestions include being admitted to hospital, giving birth (since it is stated that some of the patients who receive intravenous iron are pregnant), or reaching a target haemoglobin.

The author has anecdotal reports from staff that pain at the site of injection occurred "frequently" but there is no measure of the frequency. The summary of product characteristics for Venofer (iron sucrose) gives a frequency of between 0.5 and 1.5 per cent. Tissue damage had been reported from another hospital. The SPC warns of the risk of paravenous leakage and gives advice on measures to avoid it. A measure of the incidence of it occurring in the audited group of patients would be useful.

I am a renal pharmacist with nine years' experience. In our renal day case unit we have used intravenous iron sucrose extensively. The nurses give over 1,000 doses per year to about 300 patients with chronic renal failure or with end-stage renal failure on peritoneal dialysis. Only rarely have patients complained of pain at the site of injection.

There is no mention of the risk of potentially fatal anaphylaxis clearly stated in the SPC for CosmoFer (iron dextran) and no reference is made of the need to give a test dose as part of the procedure. A total dose infusion of iron dextran can take up to six hours to give and this is not made clear in the article. Iron sucrose can be given over 30 minutes.

Anaphylaxis can occur with iron sucrose and the SPC for Venofer clearly states this, but it is very rare and has not happened in this centre. Our experience with older formulations of iron dextran was that anaphylaxis occurred in 1 per cent of our patients. I have little experience of newer formulations. The SPC for CosmoFer states that there is an increased incidence of adverse reactions — in particular delayed hypersensitivity-like reactions with total dose infusion of iron dextran.

The European Best Practice Guidelines<sup>1</sup> for the treatment of anaemia in patients with chronic renal failure, which are evidence based, state: "Iron sucrose is generally considered the safest form of IV administered iron" and "Due to the risk of life threatening/serious acute reactions associated with IV administration of iron dextran, this form of iron therapy is not generally recommended."

The author also stated there was 100 per cent compliance with the new regimen. This is easy to achieve if a patient only has to make a single visit, even if the experience is unpleasant. The author concludes that the previous regimen was not delivering adequate clinical outcomes but provides no data on clinical outcomes with either regimen. Including measures of haemoglobin or serum ferritin levels, or both would have improved the quality of the article as would objective measures of the incidence of adverse effects.

## Gill Hartley

Directorate lead pharmacist — renal services and urology, Leicester General Hospital

## References

1. Revised European Best Practice Guidelines for the management of anaemia in patients with chronic renal failure. *Nephrology Dialysis and Transplantation* Volume 19 Supplement 2 May 2004.

ABIGAIL JENKINS, palliative care pharmacist for the pan-Birmingham cancer network and author of the article replies:

The whole point of the audit was that the patients receiving iron sucrose were lost to follow-up. Because patients were lost to follow-up we were unable to establish why patients failed to comply with the multiple visit treatment regimen required to administer desired amounts of elemental iron as iron sucrose.

It is inappropriate to assess haemoglobin levels within two to three weeks of administering intravenous iron, therefore monitoring was not appropriate in a regimen period of six weeks when three doses were administered each week. Treatment was not stopped because target haemoglobin levels had been achieved. If patients had been admitted to hospital, or given birth, it is likely that further blood tests would have been undertaken, therefore results would have been available. This was not the case for any patient investigated.

As indicated in my article, many of the patients treated for iron deficiency anaemia in our unit were pregnant females, many of whom are of Asian origin. Failure to correct

anaemia can result in a greater incidence of complications at birth, an anaemic mother (who may, if continuously anaemic, have problems managing her child) and an anaemic baby. There is evidence that early infant anaemia may have an impact on future cognitive capabilities.

With regard to comments regarding the need for a test dose, and the risk of potential anaphylaxis, these aspects of intravenous iron therapy apply to all intravenous iron supplementation. Facilities to address anaphylaxis should always be available when administering IV iron. With regard to the length of time to administer a total dose infusion, our regimen allows 1,000mg to be administered in four hours whereas to administer a similar quantity of iron sucrose, using our previous treatment regimen, would require 10 visits to the hospital with costs of an additional nine giving sets and nine additional return transport costs (home-hospital).

It is interesting that Ms Hartley indicates that she has experience with the older formulations of iron dextran but not the more recent low molecular weight form (CosmoFer). There is overwhelming and consistent evidence that low molecular weight iron dextran produces substantially less adverse events than the high molecular weight forms.<sup>2-4</sup> The frequent lack of definition of which form of iron dextran has been used in studies makes the process of an evidence-based review difficult to undertake.

The pivotal issue is that we have found 100 per cent compliance when patients are required to attend the hospital just once for intravenous iron administration, albeit for a longer session. This allows us to administer the total amount of iron, determined to correct the diagnosed iron deficiency anaemia, at a single hospital visit. As Ms Hartley points out, 100 per cent compliance is easy to achieve if a patient has to make only a single hospital visit.

## References

1. Grantham-McGregor SM, Walker SP, Chang S. Nutritional deficiencies and later behavioural development. *Proceedings of the Nutritional Society*, 2000;59:47-54.
2. McCarthy JT, Regnier CE, Loebertmann CL, and Bergstralh EJ. Adverse events in chronic hemodialysis patients receiving intravenous iron dextran — A comparison of two products. *American Journal of Nephrology*, 2000;20(6):455-62.
3. Fletes R, Lazarus JM, Gage J, Chertow M. Suspected iron dextran-related adverse events in hemodialysis patients. *AJKD* 2001;37(4):743-49
4. Chertow GM, Mason PD, Vaage-Nilsen O, and Ahlmen J. On the relative safety of parenteral iron formulations. *Nephrology Dialysis Transplantation*, 2004;19(6):1571-75. Supplement 2.