



## *The Medical* **Bulletin**

### Drug Corner

#### Iron Administration

A 24 years-old woman with regular menses, who is also a blood donor, presents with three months of mild restless legs which sometimes interfere with her sleep. She is otherwise healthy and on no medications.

Her hemoglobin is 11.7 g/dl, and her ferritin is 13 ng/ml.

**Question: Which of the following regimens of oral iron using 325 mg ferrous sulfate tablets (Containing 65 mg of elemental iron per tablet) would be the best initial strategy for maximizing**

**Her total iron replacement over the next month?**

- A. One tablet each morning
- B. One tablet every other day
- C. One tablet each afternoon
- D. One tablet twice daily
- E. One tablet every third day

**Discussion:**

Hepcidin is the primary regulatory protein involved in iron homeostasis.

It inhibits the action of Ferroprotein on duodenal enterocytes, thus, decreasing the absorption of iron from the gut.

Hepcidin is down regulated in iron deficiency and anemia, and it is increased acutely in response to iron supplementation.

Several recent studies utilizing various dosing regimens of radiolabeled iron in non-anemic young women with iron deficiency has provided further insights into the clinical implications of these effects.

Serum levels of hepcidin follow a diurnal variation, with higher levels in the latter part of the day.

A twice daily dosing regimen augments this effect and has been shown to provide no significant additional absorption when compared to a single daily morning dose.



## *The Medical* **Bulletin**

The duration of the rise in serum hepcidin after a dose of iron is about 48 h, and thus there is no benefit in giving it less often than every other day.

Recent data indicate that fractional absorption of iron is decreased by giving a daily dose, when compared to every other day. However, this reduction is in the range of 30–35% and tends to stabilize by the second week of continuous daily therapy. Therefore, the total amount of iron absorbed would still be greater over time with a daily regimen (due to twice as many cumulative doses), and in this patient who is symptomatic would be the preferred initial strategy.

In patients who have intolerance to the daily oral iron, or who are asymptomatic from their iron deficiency, it would be reasonable to give it on alternate days in the morning.

### **Clinical Pearl:**

In the absence of significant anemia, it is not beneficial to give oral doses of iron more frequently than once daily in the morning, and alternate day dosing decreases total iron absorbed by only 30%.

*Dr. Baktavatchalam*