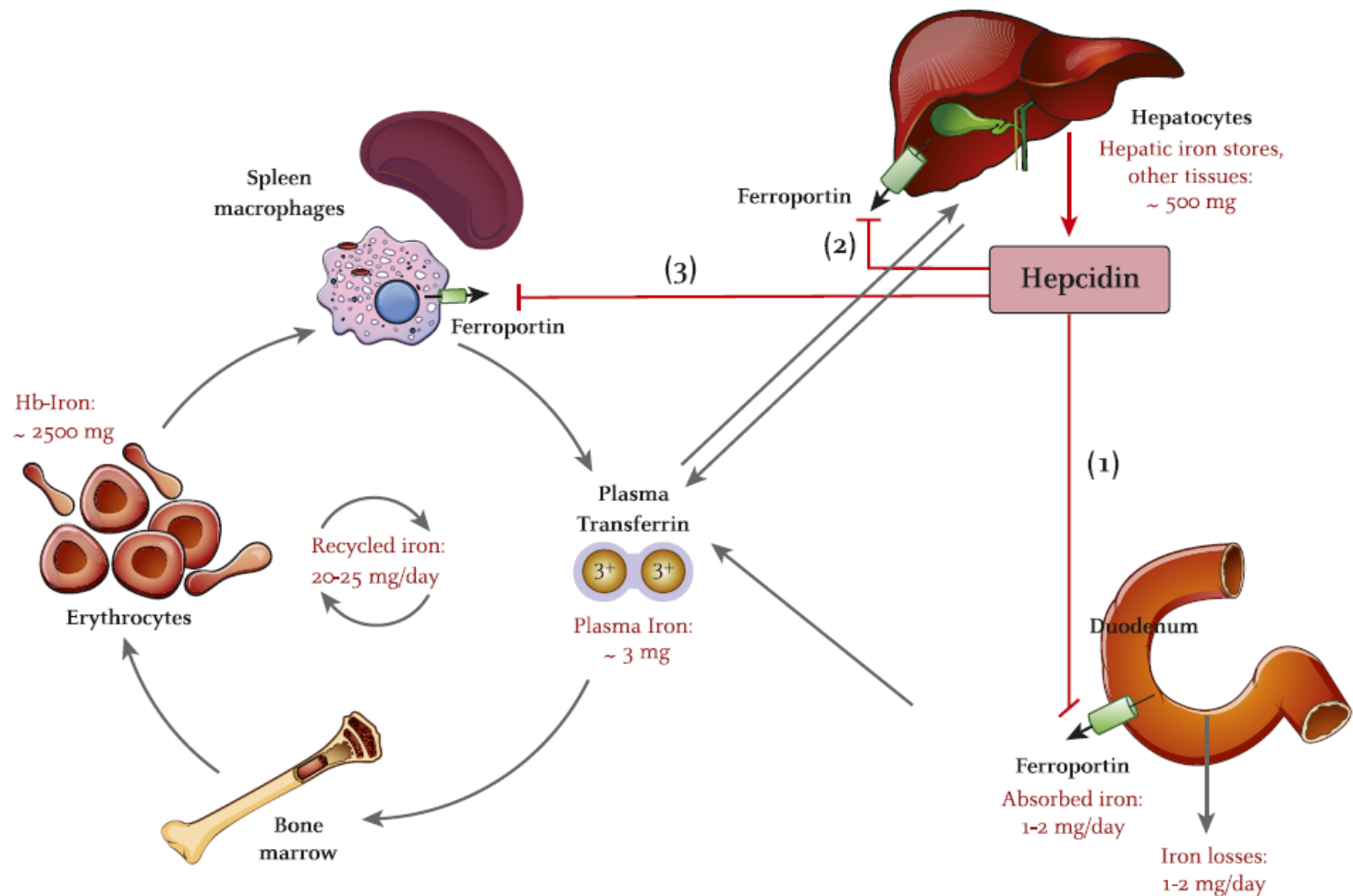


Low dose iron is the way forward

Tariq Iqbal

Iron metabolism

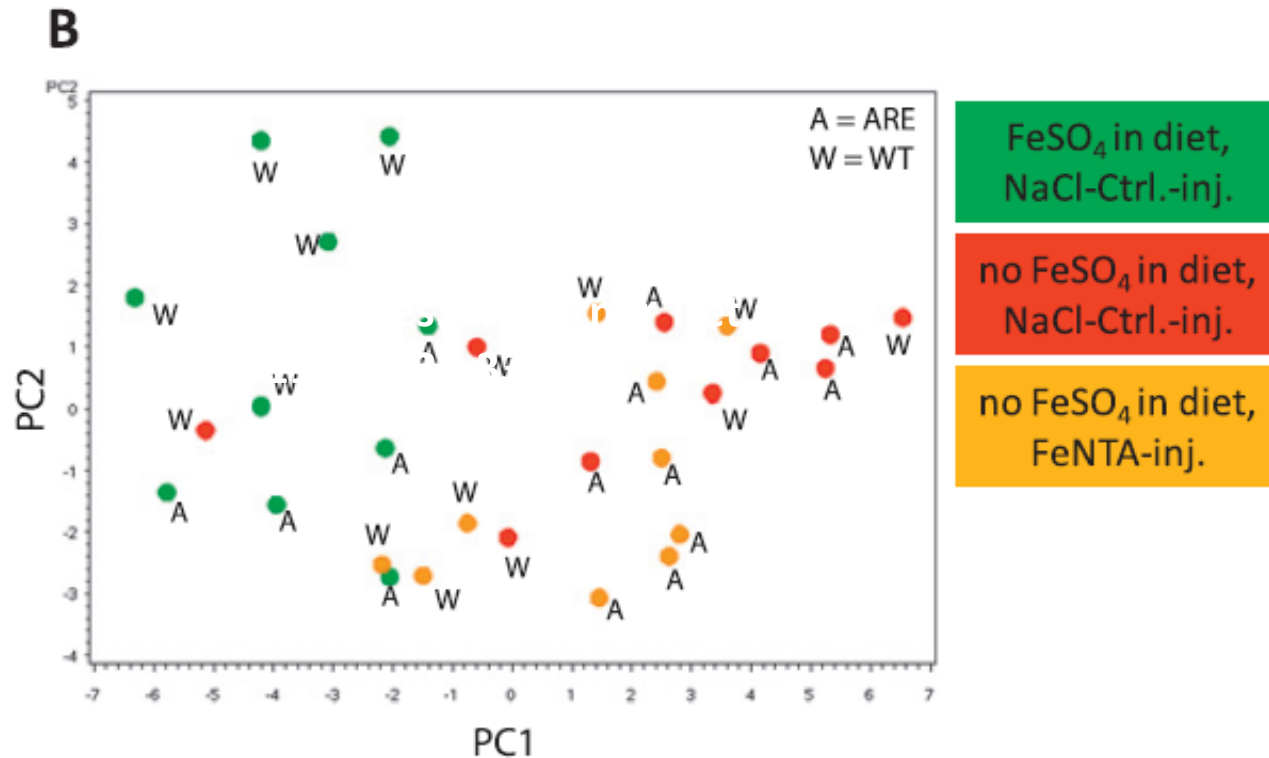


Why consider low dose?

- Iron in the gut is toxic
- IV iron is better than oral
- Patients won't take iron tablets

IRON IN THE GUT IS TOXIC

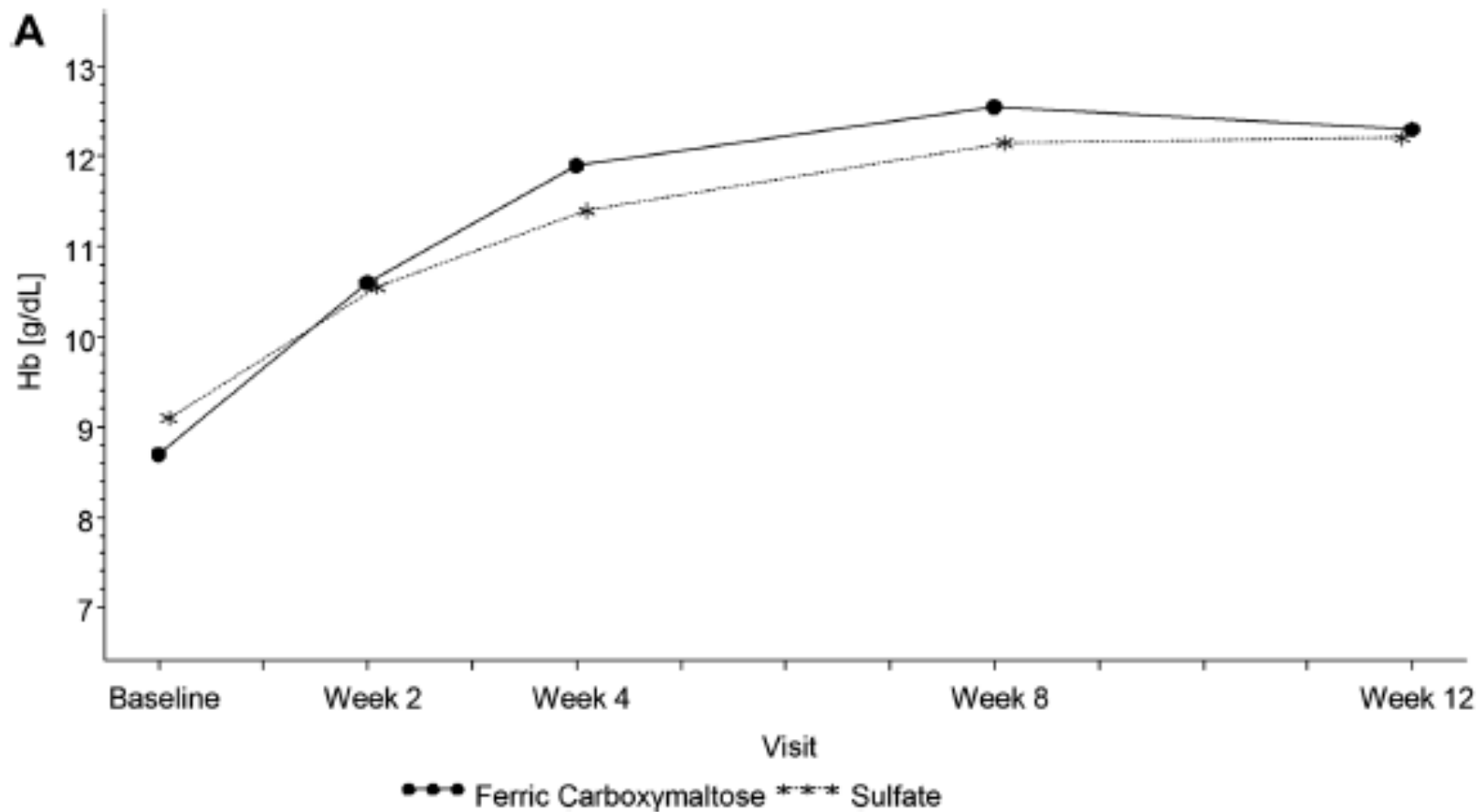
Animal models with CD loaded with iron



References: 1. Werner T et al. Gut 2011

**IV IRON WORKS BETTER THAN IRON
TABLETS**

Really?



**PATIENTS WONT TAKE IRON
TABLETS**

Iron prescriptions 2012

Prescriptions Dispensed in the Community:
England 2002-12

Table 37 Top 10 Section 9.1 drugs by NIC, 2012

BNF CHEMICAL NAME	Items 2012 (000s)	Item difference (000s)	Item difference %	NIC 2012 £ (000s)	NIC difference £ (000s)	NIC difference %
Darbepoetin Alfa	29.418	-2.554	-8.0	6,795.769	-562.839	-7.6
Ferrous Sulphate	2,918.810	-427.512	-12.8	6,226.195	-1,081.041	-14.8
Folic Acid	4,930.135	504.144	11.4	5,095.947	420.971	9.0
Ferrous Fumarate	3,421.669	659.827	23.9	4,132.359	637.620	18.2
Cyanocobalamin	410.475	41.077	11.1	2,940.985	249.899	9.3
Epoetin Beta	7.849	-4.068	-34.1	2,181.303	-1,328.354	-37.8
Hydroxocobalamin	1,601.339	210.689	15.2	1,816.114	30.824	1.7
Ferrous Gluconate	333.458	-6.444	-1.9	1,487.583	-261.665	-15.0
Anagrelide Hydrochloride	3.456	-0.025	-0.7	1,313.841	74.935	6.0
Deferasirox	1.049	-0.009	-0.9	885.301	-15.758	-1.7
Total	13,934.900	956.257	7.4	35,466.189	-2,215.396	-5.9

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Patients do take iron tablets but...

In real life study of 87 IBD patients :

- More than 50% had side effects.
- 40% completed course (worked in 30%).
- Median course 4.5 months
- Most took 1-2 tablets of the three invariably prescribed

Low dose iron in the elderly

- 90 elderly (mean age 86) in-patients
- Randomised to ferrous gluconate for 2 months
 - 15mg
 - 50mg
 - 150mg

Table 2 Changes in hemoglobin and ferritin values in study participants* during 2 months of iron therapy

Iron dose, daily	Time from first iron dose		Increase between Day 0 and Day 60 (95% confidence interval)
	Day 0	Day 60	
Hemoglobin (g/dL)	Mean \pm SD		
15 mg	10.0 \pm 1.1	11.3 \pm 0.9†	1.3 (0.7-2.0)
50 mg	10.9 \pm 1.0	12.3 \pm 0.7†	1.4 (0.8-1.9)
150 mg	10.2 \pm 1.3	11.6 \pm 0.8†	1.4 (0.9-1.8)
No anemia (15 mg)	13.1 \pm 0.9	13.2 \pm 0.9	0.2 (0.2-1.5)
Ferritin (ng/mL)			
15 mg	19.8 \pm 6.6	60.2 \pm 18.5†	40.4 (32.1-48.1)
50 mg	25.1 \pm 8.8	61.4 \pm 18.2†	36.3 (29.1-42.5)
150 mg	22.2 \pm 9.1	66.3 \pm 19.5†	44.1 (35.5-50.4)
No anemia (15 mg)	86.5 \pm 23.5	90.2 \pm 26.7	3.7 (2.1-20.4)

*Thirty participants were assigned to each dose group.

† $P < 0.001$ compared with day 0.

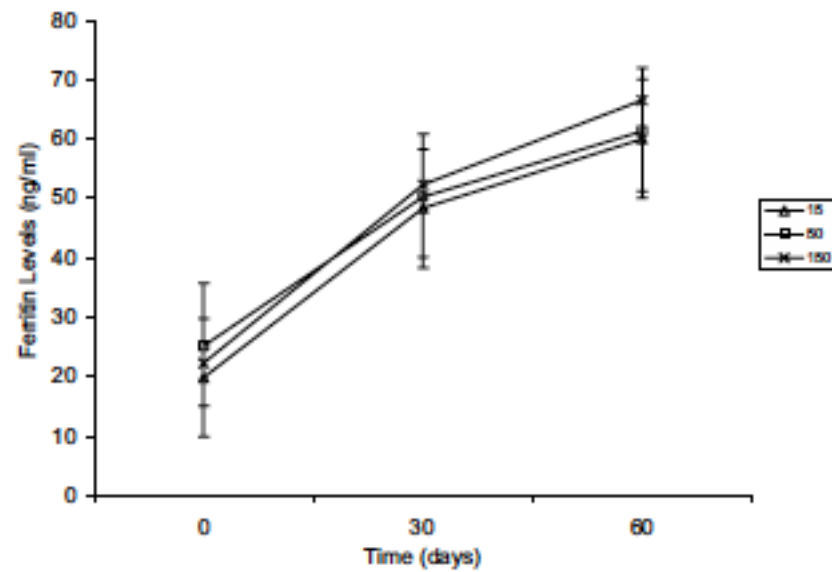


Figure 2 Effects of different doses of iron intake on serum ferritin levels. Normal ferritin range: 24 ng/mL to 300 ng/mL.

Table 3 Reported adverse effects of different doses during daily iron therapy for 2 months

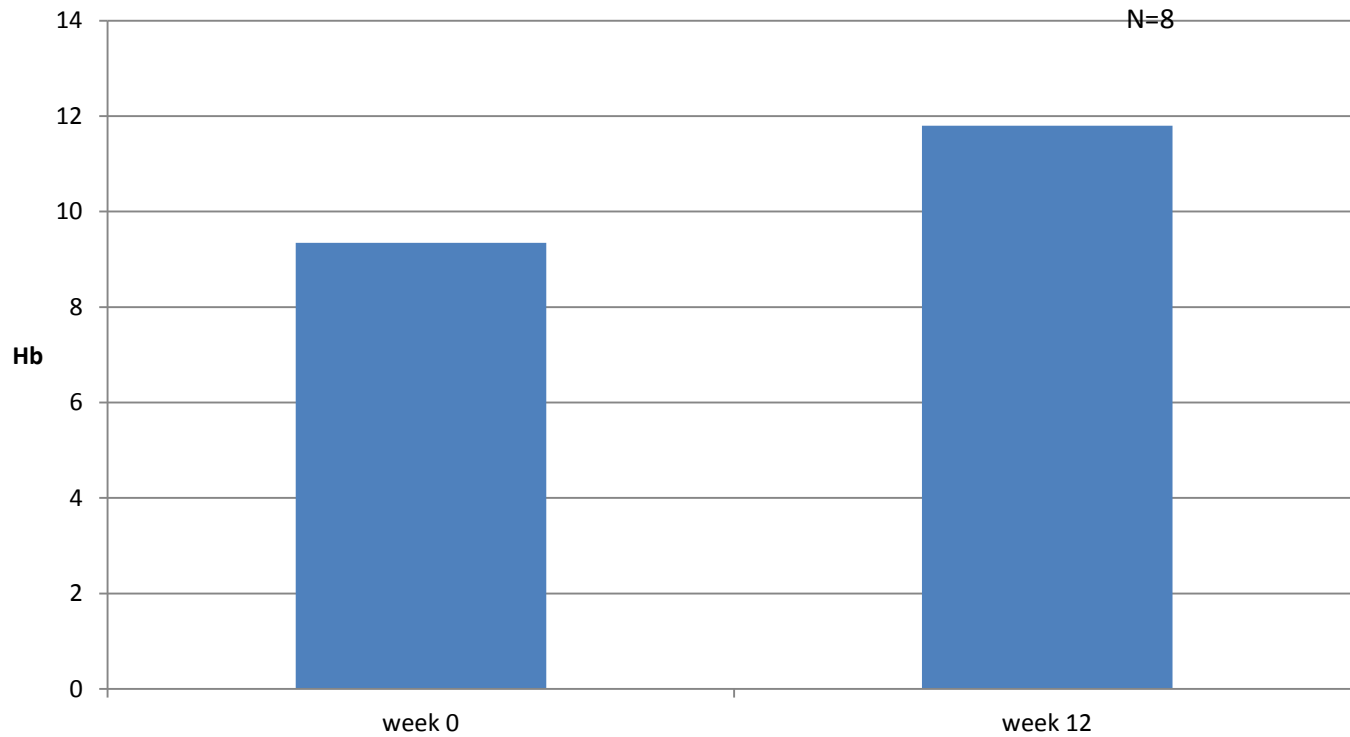
	Daily iron dose per group*		
	15 mg	50 mg	150 mg
Adverse effect	Number (%)		
Abdominal discomfort	6 (20)	18 (60)†	21 (70)†
Nausea/vomiting	4 (13)	11 (36)	20 (67)†‡
Diarrhea	4 (13)	16 (53)†	21 (70)†
Constipation	0	3 (10)†	7 (23)†
Darkened stools	13 (44)	20 (67)†	27 (91)†
Black stools	0	9 (30)†	20 (67)†‡
Dropout	2 (7)	5 (17)	8 (27)†

*Thirty patients were included in each treatment group. Adverse effects were assessed by a questionnaire at days 10, 30, and 60.

† $P < 0.05$ between this group and the 15-mg group.

‡ $P < 0.05$ between this group and the 50-mg group.

Globifer



Low dose iron is the answer

Maybe !

- One size (iv) does not fit all
- The toxicity of iron in reasonable doses remains to be shown
- Low dose iron seems to work and is well tolerated