Results

Our study consisted of 3 groups of 450 pregnant women with iron deficiency anaemia, each group was comparable with each other for age, parity, gestational age and BMI. All groups took iron therapy for treatment of iron deficiency anaemia for one month, group I received Ferrotron capsules (iron chelated amino acid), group II received iron in the form of ferrus sulfate, group III received iron in the form of ferrus gluconate . All three groups were be compared for there response to the treatment according to the increase of Hb level and MCHC and RC.

Table (1)Clinical characters of patients in all group

	GI	**GII**	**GIII**	**Sig**	**p. value**
Age (mean ±SD)	29.3 ± 3.3	28. 6 ± 2.6	28. 4 ± 3.2	**(F)1.512**	**0.949**
Pgda	45(30%)	48(32%)	47(31.3%)	**X^2 5.49**	**0.059**
M.P	65(43.3%)	66(44%)	60(40%)	**2.43**	**0.841**
GMP	40(26.66%)	36(24%)	43(28.66%)	**1.769**	**0.241**
Gestational age (wks) (mean ±SD)	33.2 ± 2.3	34.8 ± 3.2	34.9 ±3.7	**(F)0.214**	**0.669**
BMI (mean ±SD)	23.2 ± 1.2	22.8 ± 2.8	22.8 ± 2.8	**(F)1.359**	**0.508**

There were no significant differences in age, parity, gestational ages, and BMI between all groups. **Table (1)**

Table (2)shows base line of haemoglobin level and MCHC level in the blood before iron therapy .

	GI	GII	GIII	f. test	p. value
Hb (mean ±SD)	7.9±1.3	8±1.1	7.8±1.4	**1.523**	**0.850**
MCHC (mean ±SD)	19.42±2.1	19.7±1.8	19.68±2.2	**0.623**	**0.074**

As regard HB level G1 range from 7.9 to 10 gm/dL with non significant value for the HB level of other groups.

As regard MCHC the base line in G1 18.5-22.2gm/dL with no significantly difference to the other group statistically.

Table (3):Side effects of iron therapy in all groups

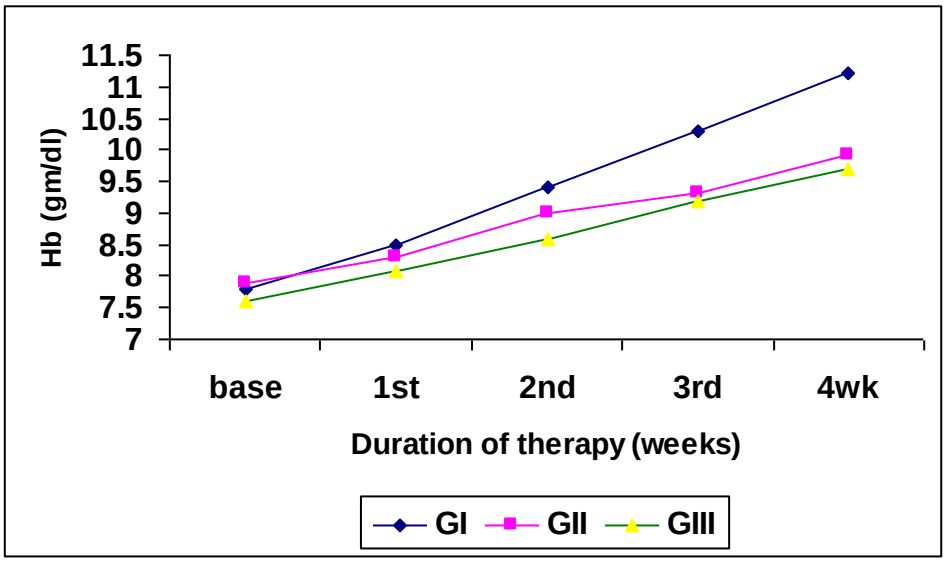
	GI	GII	GIII	X^2	P
Nausea	8/150 (5.3%)*	81/150(54%)	83/150(55.3%)	14.25	0.001*
Vomiting	4/150 (2.6%)*	64/150(42.6%)	66/150(44%)	15.36	0.003*
Diarrhea	3/150(2%)*	23/150(15.33%)	25/150(16.65)	16.37	0.003*
Abdominal cramps	5/150(3.33%)*	88/150(58.6%)	91/150(60.6%)	33.32	0.001*
Constipation	10/150(6.66%)*	107/150(71.3%)	110/150(73.35)	29.36	0.002*
Daily cost LE	1.82**	1.87	1.72	5.24	0.049*

(*) Significant . **(**) Non Significant .**

During therapy the incidence of nausea was significantly lower in group I than the other 2 groups (8/150(5.3%) for group I versus 81/150(54%) in group II and 83/150(55.3%)in group III (P<0.001). Also, incidence of vomiting was significantly lower in group I (4/150(2.6%) versus 64/150(42.6%) in group II . 66/150(44%) in group III (P<0.003). According to diarrhea (3/150(2%) in group I versus 23/150(15.33%) in group II .25/150(16.65%) in group III (P<0.003). Abdominal cramps (5/150(3.33%) in group I versus 88/150(58.6%) in group II and 91/150 (60.6%)in group III (P<0.001). Constipation (10/150(6.66%) in group I versus 107/150(71.3%)in group II. 110/150(73.35%) in group III (P<0.002) (tab.3).

The daily cost of therapy was comparable for all groups.

Fig. (1): Rate of increase in Hb level with ferrotron



HB GI (11.2± 0.5) HB GII (9.9 ± 0.5) HB GIII (9.7 ± 0.4)

During therapy group I showed increased in mean Hb level from (0.8 to 2.2 gm/dL) during four weeks of the therapy(fig 1).

The rate of increased in Hb level was significantly higher in group I than group II and III.

In group I: it was 11.2±0.5 gm/dL versus 9.9 ±0.5 in group II and 9.7±0.4 in group III .

Table (4): Shows the rate of increased HB in each group every weak .

HB	BASE	1st	2nd	3rd	Mean ±SD 4th	f. test	p. value
GI	7.8	8.5	9.4	10.3	11.2±0.5	**2.251**	**0.049**
GII	7.9	8.3	9	9.32	9.9±0.5	**0.993**	**0.077**
GIII	7.6	8.08	8.6	9.2	9.8±0.4	**0.606**	**0.293**

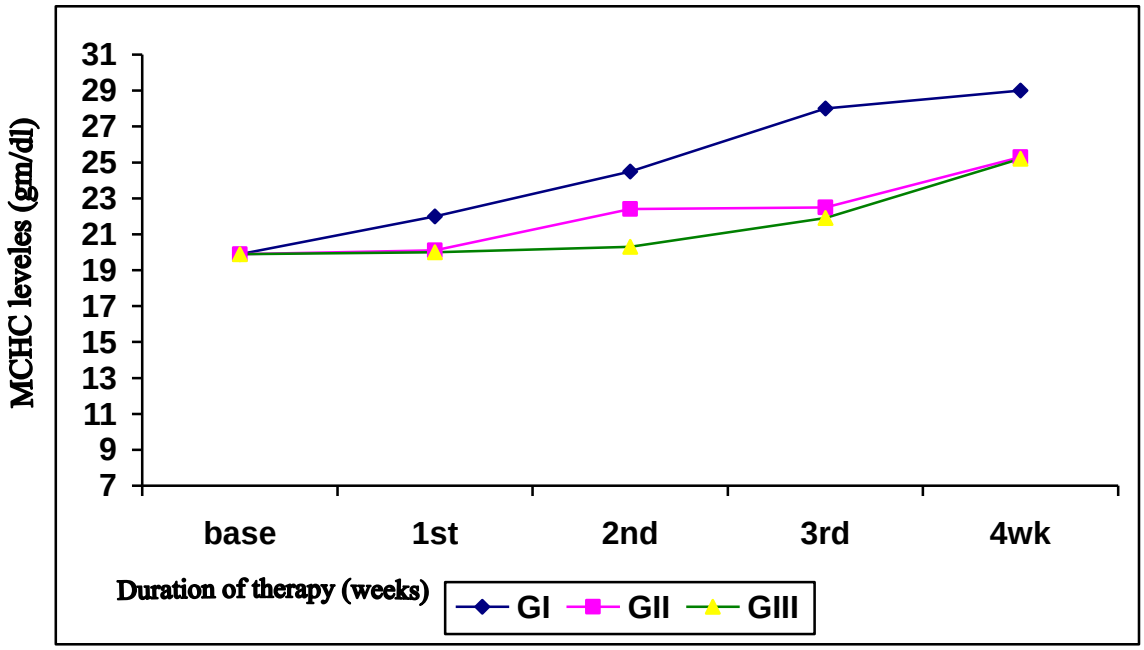
- There was significant increase in HB level every weak in **GI** (P. 0.049) versus non significant increase in HB level every weak in **GII** (P. **0.077**) and **GIII (P. 0.293) .**

Table (5): Shows the comparison between each group according to HB level pre and post treatment .

HB	**Mean ±SD** HB pre ttt	**Mean ±SD** HB post ttt	p. value
GI	7.9±1.3	11.2±0.5	0.047
GII	8±1.1	9.9±0.5	0.289
GIII	7.8±1.4	9.7±0.4	0.148

- The comparison showed significant increase in HB level in group 1 than the other two groups. p. value was 0.047 in groupI versus 0.289 in group II and 0.148 in group III .

Fig. (2): Rate of increase in MCHC levels



GI (30± 0.5) GII (26.3± 0.4) GIII (26.1± 0.5)
According to MCHC levels, there was significantly higher in group I than the other two groups after these four weeks it was in group I 30±0.5 gm/dL versus 26.3±0.4 for group II 26.1±0.5 for group III .

Table (6): Shows the rate of increased MCHC in each group every weak .

MCHC	BASE	1st	2nd	3rd	Mean ±SD 4th	f. test	p. value
GI	19.9	22	24.5	28	29.4±0.5	**3.512**	**0.023**
GII	19.9	20.1	22.4	22.5	25.3±0.4	**1.133**	**0.096**
GIII	19.9	20	20.3	21.9	25.1±0.5	**1.517**	**0.475**

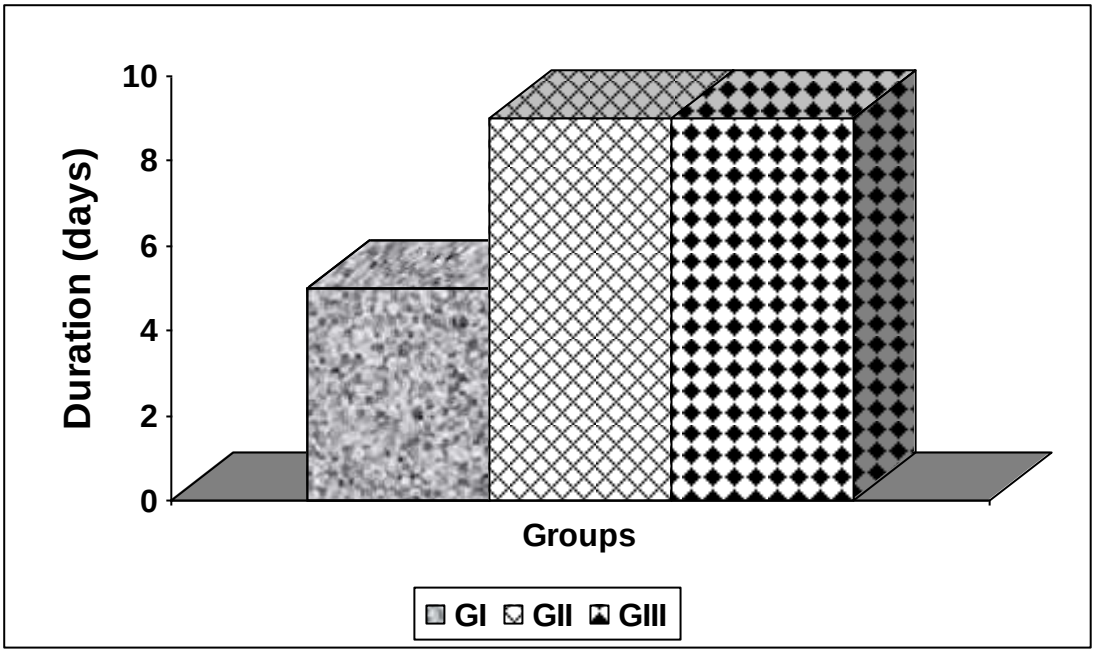
- There was significant increase in MCHC level every weak in **GI** (P. **0.023**) versus non significant increase in MCHC level every weak in **GII** (P. **0.096**) and **GIII (P. 0.475) .**

Table (7): Shows the comparison between each group according to MCHC level pre and post treatment .

MCHC	Mean ± SD pre ttt	Mean ± SD post ttt	p. value
GI	19.42±2.1	30±0.5	0.001
GII	19.77±1.5	26.3±0.4	0.098
GIII	19.71±1.3	26.1±0.5	0.086

- The comparison showed significant increase in MCHC level in group 1 than the other two groups. p. value was 0.001in groupI versus 0.098in group II and 0.086 in group III .

Fig. (3): Time of peak reticulocytosis



The peak reticulocytosis is reached during the first week of therapy in group I versus the second week in group II and III (fig 3).

Table. (8) shows the Apgar score in three groups:

Score	GI	GII	GII	X^2	p. value
7	25(16.66%)	28(18.6%)	32(21.33%)	**0.739**	**0.694**
8	39(26%)	45(30%)	46(30.66%)	**0.522**	**0.771**
9	66(44%)	60(40%)	59(39.33%)	**0.336**	**0.849**
10	20(13.33%)	17(11.3%)	13(8.66%)	**1.34**	**0.512**

There was no statistically significant differences between all groups as regards the apgar scores of their newborns.