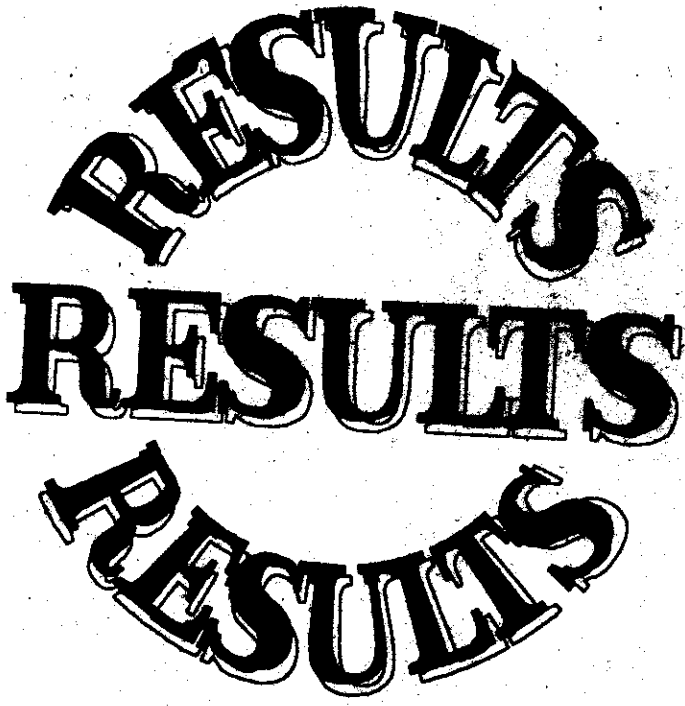

RESULTS
RESULTS
RESULTS

RESULTS

The study included 50 patients of melasma divided into 2 groups , idiopathic melasma (12) patients and secondary melasma (38) patients .

(1) Results obtained from the history and examination :

The mean age of idiopathic melasma patients was 24.3 ±4.8 years and their mean age at the onset of melasma was 20.3±4.5 years , while the mean age of secondary melasma was 30 ± 6 years and their mean age at the onset of melasma was 25.3 ± 5.5 years . The difference between both groups was statistically significant (**P<0.05** ,). (table 1)

The centrofacial pattern of melasma was observed in eight (**66.7 %**) patients with idiopathic melasma and twenty six (**68.4 %**) patients with secondary melasma . The malar pattern was seen in three (**25 %**) patients with idiopathic melasma and ten (**26.3 %**) patients with secondary melasma . The mandibular pattern in one (**8.3 %**) patient with idiopathic melasma and two (**5.3 %**) patients with secondary melasma . The difference between both groups was statistically non significant (**P>0.05**) (Table 2).

Family history of melasma was positive in two (**16.7 %**) patients with idiopathic melasma and thirteen (**34.2 %**) patients with secondary melasma . The difference between both groups was statistically non significat (**P>0.05**) (Table 3).

The possible thyroid disorders detected by the history and examination was observed in six (**15.8 %**) patients with secondary melasma . Five had thyroid enlargement and

one had thyroidectomy before the onset of their melasma lesion . The total incidence of thyroid disorders was 12 % in our melasma patients. As regards the relation between melasma and emotional stress . It has been shown that only one patient with idiopathic melasma had a severe emotional stress two months before the onset of her melasma.

Menstrual irregularities has been found in eleven (**22 %**) of melasma patients , three (**25 %**) patients with idiopathic melasma and eight (**21.1%**) patients with secondary melasma (Table 4) .

It has been found that sun exposure was a prominent cause of exacerbation of melasma in fourty six (**92 %**) of our melasma patients , all the twelve (**100 %**) patients with idiopathic melasma and thirty four (**89.9 %**) patients with secondary melasma . (Table 5).

It has been found that ten (**20 %**) of our melasma patients had a history of cosmetics use , three (**25 %**) patients with idiopathic melasma and seven (**18.4 %**) patients with secondary melasma , while fourty (**80%**) patients had no history of cosmetics use. The differnce between both group was statistically non significant (**P>0.05**) .

2 - Results of the laboratory investigation:-

Table (6,7) and fig. (1) shows , the results of hormonal assays including T3 , T4 , Estrogen and LH levels in patients with idiopathic melasma and their control group . It has been shown that mean T3 (ng %) level in patients with idiopathic melasma was 156. 2 $\pm$ 18. 4 , while in the control group was 162 .3 $\pm$ 25.3 the difference between both groups was statistically non significant (P> 0.05). The mean T4 (ug %) level in

idiopathic melasma patients was **10.5 ± 2.2** , while in the control group was **9.2± 1.3** . The difference between both groups was statistically non significant (**P> 0.05**). The mean Estrogen (pg/ml.) level in idiopathic melasma patients was **41.9 ± 14,** while in the control group was **53.6 ± 12.9**. The difference between both groups was statistically significant (**P< 0.05**).

The mean LH (mμ/ml.) level in patients with idiopathic melasma was **19 .9 ± 2.7** , while in the control group was **12 ± 3.1** .The difference between both groups was statistically significant (**P< 0.05**).

3- Results of the treatment

Table (**8**) and Fig (**2**) , demonstrate ,the mean percentage reduction of melasma lesion size at different follow up periods of treatment with azelaic acid (AA) or hydroquinone (HQ) . At the 4 th week , the mean percentage reduction of lesion size in azelaic acid group was o.9 ± 1.9 while it was **0.0 ± 0.0** in hydroquinone group . The difference between both group was non significant (**P> 0.05**) . At ninth week , the mean reduction of lesion size in AA group was **10.2 ± 5.1** while it was **6.1 ± 3.2** in HQ group. The difference between both group was significant (**P< 0.05**) . after 14 weeks , The mean reduction of lesion size in AA group was **19. 2 ± 7.5** while it was **11.6 ± 6.1** in HQ group . The difference between both groups was significant (**P< 0.05**) . After 19 weeks , The mean reduction of lesion size in AA group was 28.1 ± 11 while it was **15.9 ± 8.6** in HQ group . The difference between both groups was statistically significant (**P< 0.05**) after 24 weeks . The mean reduction of lesion size in AA group was **37.7 ± 17.9** while it was **20.9 ± 10.9** in HQ group . The difference between both groups was statistically significant (**P< 0.05**) .

Table (9) ,demonstrates , The effect of treatment with AA and HQ on reduction of melasma lesion size at end of the study . In AA group 2 patients (**20%**) Showed **50- 75%** reduction in lesion size, 5 patients (**50 %**) showed **25- 50 %** reduction in lesion size and 3 patients (**30 %**) showed less than 25% reduction, while in HQ group 3 patients (**30 %**) showed **25-50 %** reduction in lesion size and 7 patients (**70 %**) showed less than **25 %** reduction. The difference between both groups was statistically significant (**P< 0.05**).

Table (10) , demonstrates , The effect of treatment with AA and HQ on reduction of melasma pigment intensity at the end of the study .In AA group, 4 patients (**40 %**) showed **2-3** level or (**50 - 75 %**) reduction of pigment intensity, while in HQ group only 2 patients (**20 %**) showed the same reduction . The difference between both groups was statistically significant (**P< 0.05**). In AA group, 5 patients (**50 %**) showed 1-2 levels or (**25 - 50%**) reduction of pigment intensity while in HQ group 4 patients (**40 %**) showed the same reduction . The difference between both group was statistically non significant (**P>0.05**) .In AA group , one patient (**10 %**) showed less than one level (**< 25 %**) reduction of pigment intensity, while in HQ group, 4 patients (**40%**) showed the same reduction of pigment intensity. The difference between both groups was statistically sigificant (**P< 0.05**) .

Table (**11**) shows, The mean percentage reduction of melasma lesion size and pigment intensity at the end of treatment with AA and HQ as a control . In AA group the mean reduction of lesion size was **37.7 ± 17.9**, while it was **20 ± 10-9** in HQ group . The mean reduction of pigment intensity in AA group was **37 ± 1.6**, while it was **22 ± 2.6** in HQ group . The difference between both groups was statistically significant (**P<0.05**).

Table(**12**) shows ,the over all therapeutic response (lesion size & pigment intensity) in patients completing 24 weeks of treatment with AA and HQ as a control . In AA group

2 patients (**20 %**) achieved good over all improvement (**50-75 %**). 5 patints (**50 %**) achieved moderate over all improvement (**25-50 %**) and 3 patients (**30 %**) achieved poor over all improvement less than **25 %** . In HQ group, 3 patients (**30 %**) achieved moderate over all improvement (**25 - 50 %**) and 7 patients (**10 %**) achieved poor over all improvement (**less than 25 %**). The difference between both groups was statistically significant (**P<0.05**). In AA group only two patients (20%) reported mild local burning sensation, erythema and slight scaling in the first month of treamtent. While 3 patients (**30%**) of HQ group reported severe burning sensation,. erythema and scaling .

TABLE (1):THE MEAN AGE AND AGE AT ONSET OF MELASMA

GROUPS	Idiopathic Melasma	Secondary Melasma	t	P
	Mean ± S.D.	Mean ± S.D.		
MEAN AGE	24.3±4.8	30.0±6.0	3.02	<0.05
AGE AT ONSET	20.3±4.5	25.3±5.5	2.89	<0.05

TABLE (2): DISTRIBUTION OF THE CLINICAL PATTERNS OF MELASMA

GROUPS	Idiopathic Melasma		Secondary Melasma		TOTAL	
	No.	%	No.	%	No.	%
CENTROFACIAL	8	66.7	26	68.4	34	68.0
MALAR	3	25.0	10	26.3	13	26.0
MANDIBULAR	1	8.3	2	5.3	3	6.0
TOTAL	12	100.0	38	100.0	50	100.0

Adjusted $X^2 = 0.153$

$P > 0.05$

TABLE (3):RELATION BETWEEN MELASMA AND FAMILY HISTORY

GROUPS / Family History	Idiopathic Melasma		Secondary Melasma		TOTAL	
	No.	%	No.	%	No.	%
POSITIVE	2	16.7	13	34.2	15	30.0
NEGATIVE	10	83.3	25	65.8	35	70.0
TOTAL	12	100.0	38	100.0	50	100.0

Adjusted $X^2 = 0.632$
$P > 0.05$

TABLE (4):RELATION BETWEEN MELASMA AND MENSTRUAL DISORDERS

GROUPS / Menstrual Cycle	Idiopathic Melasma		Secondary Melasma		TOTAL	
	No.	%	No.	%	No.	%
REGULAR	9	75.0	30	78.9	39	78.0
IRREGULAR	3	25.0	8	21.1	11	22.0
TOTAL	12	100.0	38	100.0	50	100.0

Adjusted $X^2 = 0.013$
$P > 0.05$

TABLE (5):RELATION BETWEEN MELASMA AND SUN EXPOSURE

GROUPS	Idiopathic Melasma		Secondary Melasma		TOTAL	
	No.	%	No.	%	No.	%
SUN EXPOSURE	12	100.0	34	89.5	46	92.0
NO SUN EXPO.	0	0.0	4	10.5	4	8.0
TOTAL	12	100.0	38	100.0	50	100.0

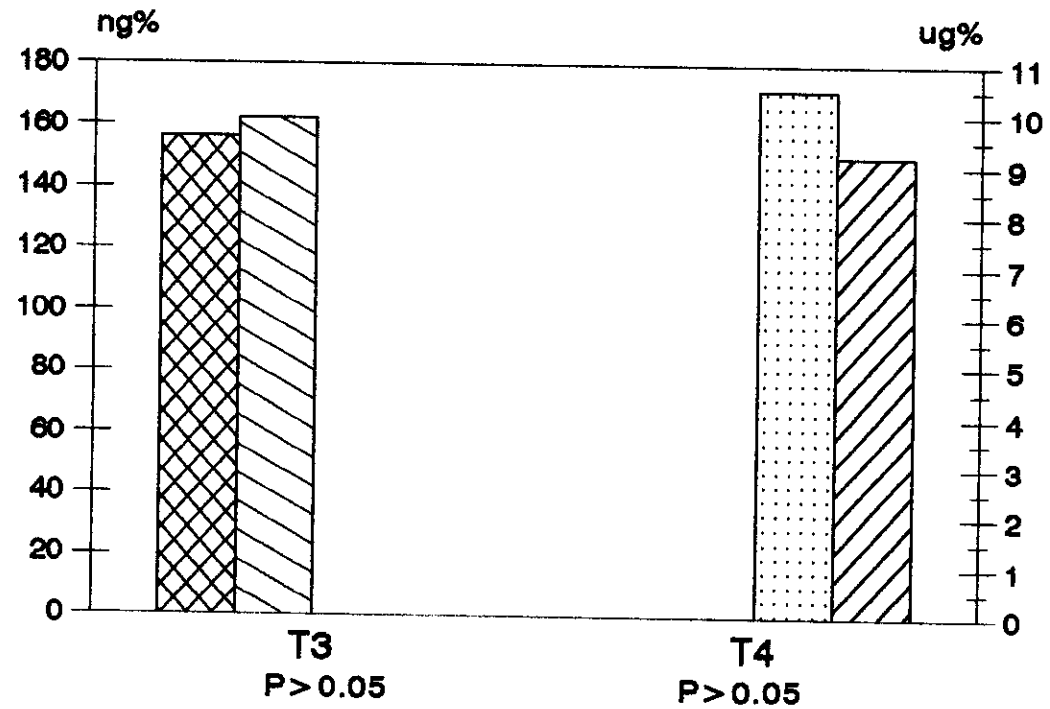
TABLE(6): Hormonal Assays Including T3,T4, Estrogen, LH Levels in Patients With Idiopathic Melasma and A Control Group

PATIENTS No.	T3 (ng%)		T4 (μg%)		Estrogen (pg/ml)		LH (miμ/ml.)	
	P	C	P	C	P	C	P	C
- 1	145	155	10.2	9.8	50	56	22.8	9.2
- 2	153	160	8.5	7.4	30	43	18.0	14.7
- 3	185	178	7.3	8.4	44	65	16.8	12.4
- 4	146	138	8.4	12.9	36	54	16.1	9.9
- 5	136	190	12.2	8.8	35	32	23.6	10.6
- 6	147	210	9.5	7.8	54	67	22.6	19.7
- 7	128	148	10.7	7.2	46	72	19.6	10.8
- 8	170	126	8.7	12.4	22	34	15.8	13.2
- 9	183	136	13.7	9.8	25	45	17.8	12.5
- 10	162	146	10.8	8.0	45	52	18.2	9.8
- 11	145	178	11.7	10.2	74	57	16.7	13.4
- 12	175	182	14.2	7.8	42	66	19.8	8.2
Mean±S.D	156.2±18.4	162.3±25.3	10.5±2.2	09.2±1.3	41.9±14	53.6±12.9	19.8±2.7	12±3.1

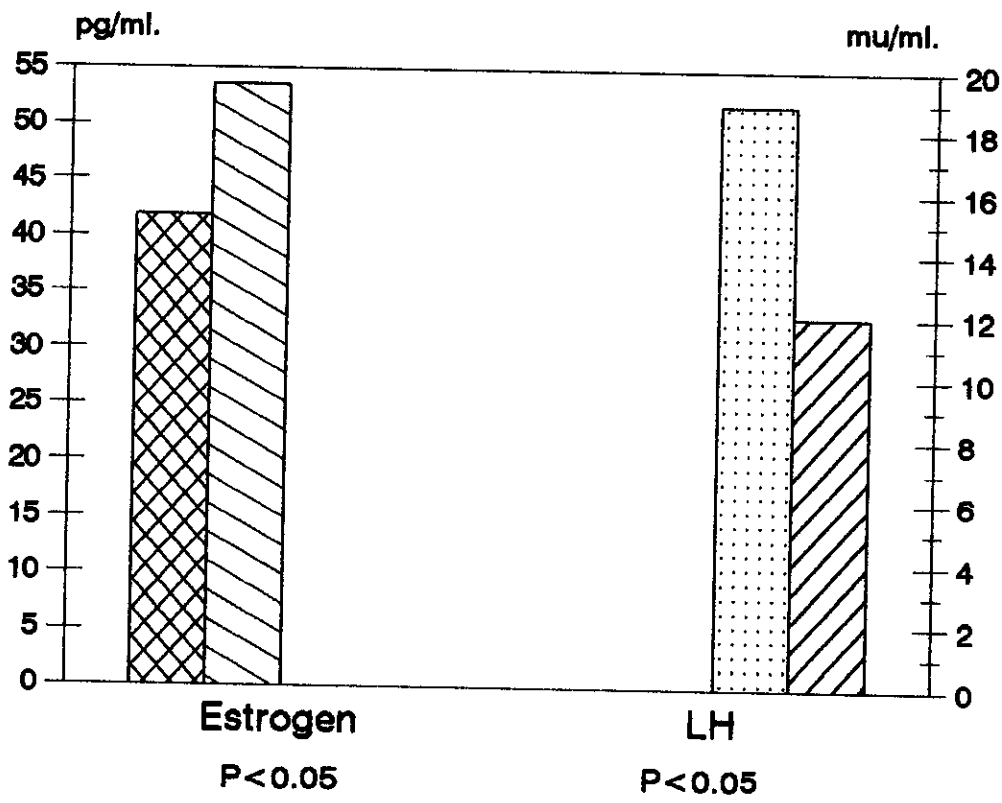
TABLE (7): Mean T3,T4, Estrogen ,LH Levels in Idiopathic Melasma Patients and a Control Group

GROUPS / HORMONE	Idiopathic Melasma Mean ± S.D.	Controls Mean ± S.D.	t	P
T3 ng%	156.2± 18.4	162.25± 25.32	0.67	>0.05
T4 ug%	010.5± 02.2	009.20± 01.31	1.08	>0.05
ESTROGEN pg/ml	041.9± 14.0	053.60± 12.9	2.11	<0.05
LH mu/ml	018.9± 02.7	012.03± 03.10	5.84	<0.05

Fig.(1): Mean T3,T4, Estrogen , LH Levels In Patients With Idiopathic Melasma (n=12) And A Control Group (n=12)



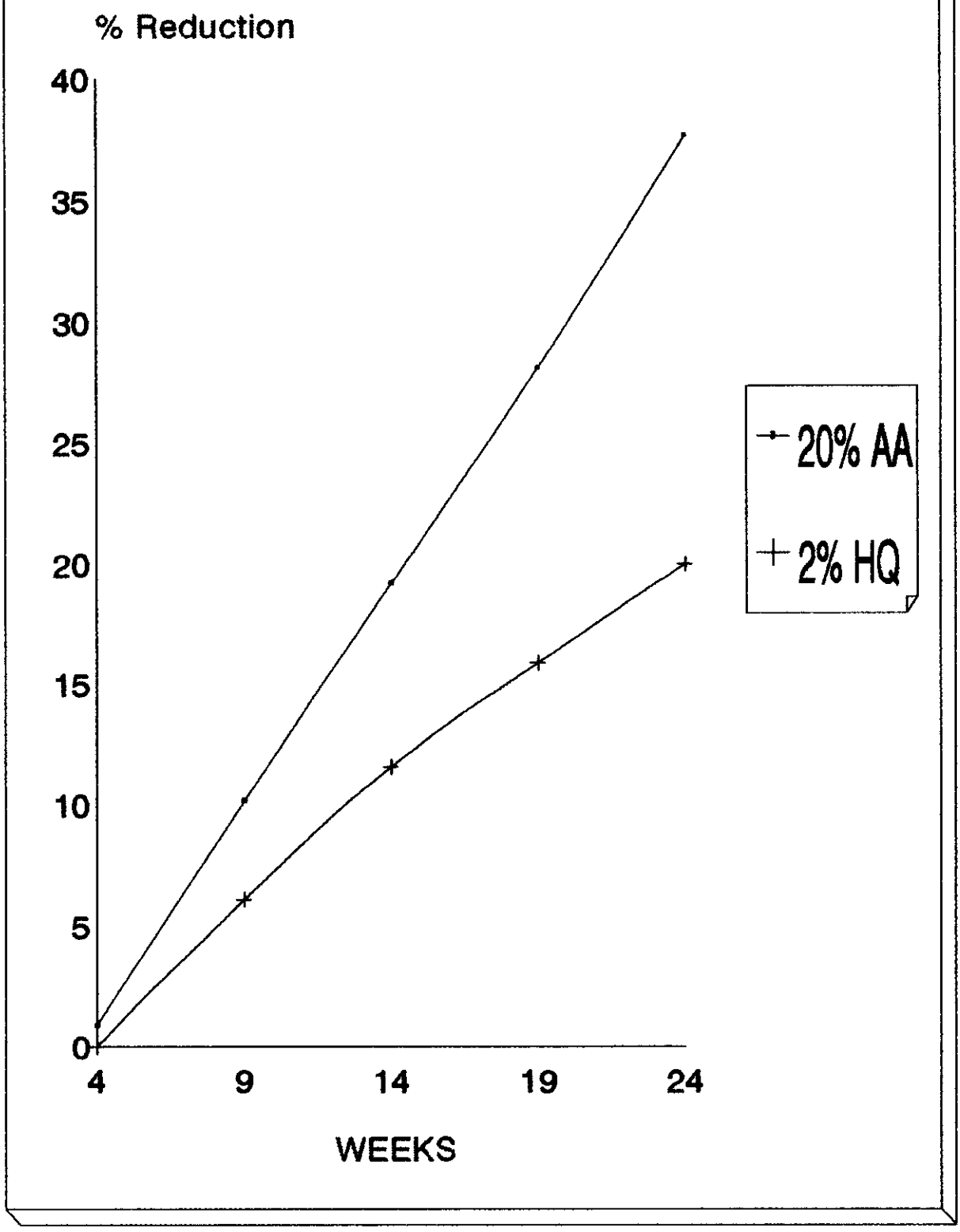
Melasma Control Melasma Control



TABLE(8): Mean Percentage Reduction of Melasma Lesion Size at different Follow up Periods of Treatment with (Azelaic acid (AA) and Hydroquinone (HQ)

GROUP / FOLLOW UP PERIODS	20% Azelaic Acid Mean ± S.D.	2% Hydroquinone Mean ± S.D.	t	P
4 WEEKS	00.9 ±01.9	00.0 ±0.00	1.50	>0.05
9 WEEKS	10.2 ±05.1	06.1 ±03.2	2.19	<0.05
14 WEEKS	19.2 ±07.5	11.6 ±06.1	2.49	<0.05
19 WEEKS	28.1 ±11	15.9 ±08.6	2.76	<0.05
24 WEEKS	37.7 ±17.9	20.0 ±10.9	2.54	<0.05

Fig.(2): Mean Percentage Reduction of Melasma Lesion Size at Different Follow Up Periods of Treatment with (AA & HQ)



TABLE(9): The Effect of Treatment With AA & HQ on Reduction of Melasma Lesion Size

BLEACHING AGENT	< 25 %		25 - 50 %		50 - 75 %	
	No.	%	No.	%	No.	%
AA	3	30.0	5	50.0	2	20.0
HQ	7	70.0	3	30.0	-	-
P	< 0.05		< 0.05		< 0.05	

TABLE(10): The Effect of Treatment With AA & HQ on Reduction of Melasma Pigment Intensity

BLEACHING EFFECT	<1 Level(<25%)		1-2 Level(25-50%)		2-3 Level(50-75%)	
	No.	%	No.	%	No.	%
AA	1	10.0	5	50.0	4	40.0
HQ	4	40.0	4	40.0	2	20.0
P	< 0.05		> 0.05		< 0.05	

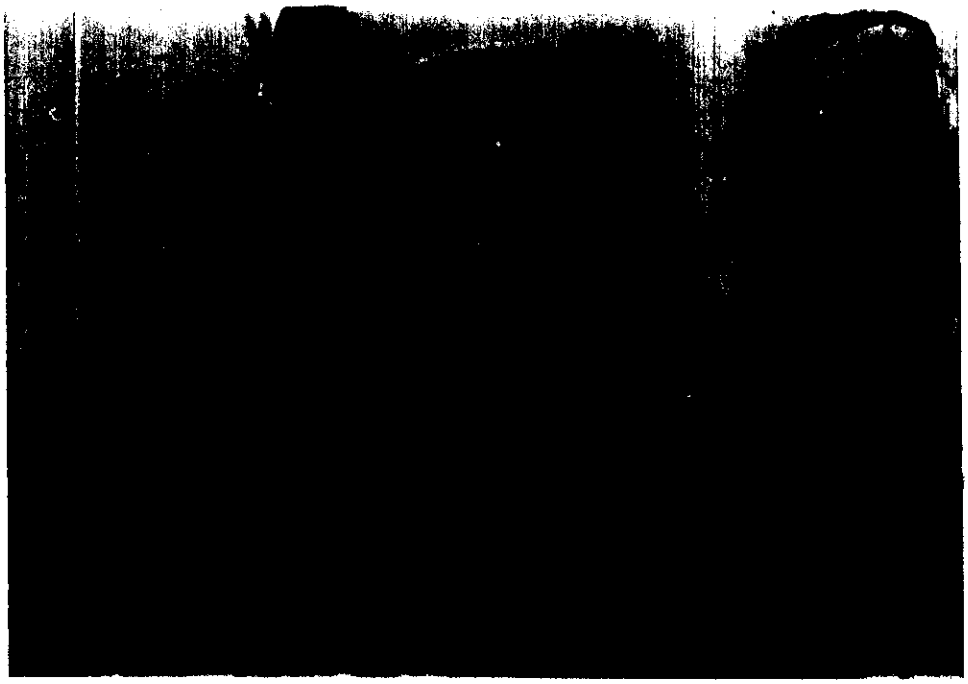
TABLE(11): Mean Percentage Reduction of Melasma Lesion Size and Pigment Intensity After 24 Weeks of Treatment With AA and HQ

GROUP / BEACHING AGENT	Reduction of Lesion Size	Reduction of Pigment Intensity
	Mean ± S.D.	Mean ± S.D.
AA	37.7 ± 17.9	37 ± 1.6
HQ	20.0 ± 10.9	22 ± 2.6
P	<0.05	<0.05

TABLE(12): The Over All Therapeutic Response In Patients Completing 24 Weeks Of Treatment with AA & HQ

BLEACHING Effect	Good(50-75%)		Moderate(25-50%)		Poor(<25%)	
	No.	%	No.	%	No.	%
AA	2	20.0	5	50.0	3	30.0
HQ	0	0.0	3	30.0	7	70.0
P	< 0.05		< 0.05		< 0.05	

The picture shows case number (1) of HQ group after 6 months of treatment the results was <25%.



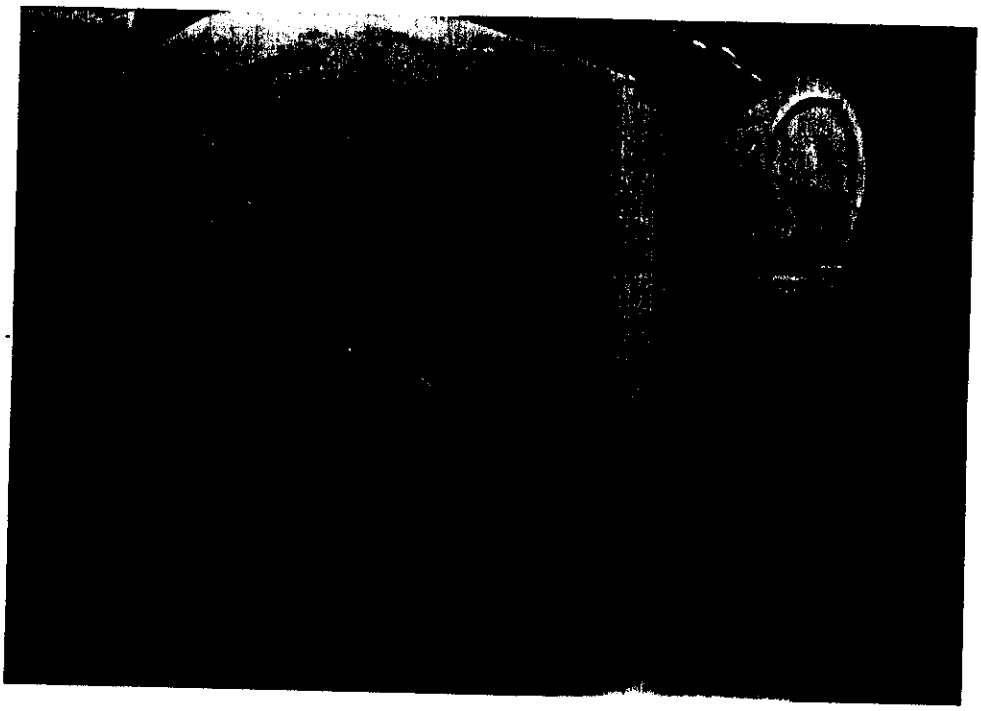
The picture shows a case number (2) of melasma befor treatment

The picture shows a case number (2) treated with 20% AA for 6 months and the results was about 75%.

The picture shows case number (4) of HQ group befor treatment.

The picture shows case number (4) of HQ group after 6 months of treatment the result was < 50%.

The picture shows case number (5) of AA group befor treatment



The picutre shows case nubmer (5) of AA group after 6 months of treatment and the results was < 50%.

The picture shows case number (7) of HQ group after 6 months of treatment the results was < 25%.

The picture shows case number (8) of AA group before treatment

The picture shows case number (8) of AA group after 6 months of treatment and the results was < 50% .