

# Effect of dexfenfluramine on obesity

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*In this study, we investigated the effect of dexfenfluramine (DF) on obese thirty patients. The DF group were followed for two months as well as the control group. Ideal caloric intake were calculated according to the ideal body weight, job and physical activity. Thirty mg per day dexfenfluramine were given to the patient group for two months. Body weight, body mass index (BMI), abdominal/gluteal size ratio and subcutaneous fat tissue were measured. All parameters except abdominal/gluteal ratio in the patient group were lower significantly than those in the control group. [Turk J Med Res 1996; 14(2):71-73]*

**Key Words:** Dexfenfluramine, Obesity

None of the pharmacological agents used for obesity could remove the need to diet and to exercise (1). Three important improvements were reported during the last 20 years when the recent drugs approved on obesity (mazindol, klortermine, dexfenfluramine and their derivatives) were on use. The first one was a common belief that the behaviour change was necessary in the treatment of obesity. The second improvement was the acceptance of diet with low calorie. The last one was the approval of the drugs which change the mechanism of food intake (2). This kind of treatment resulted in new discussions about pharmacotherapy.

Dexfenfluramine induces serotonin secretion from presynaptic granules, and blocks partially the reuptake of serotonin by these neurons. Dexfenfluramine increases plasma serotonin levels. Serotonin decreases food intake by inducing 1-B receptors (3).

This study was planned to investigate the effect of dexfenfluramine which is a new isomer of phenfluramine on the treatment of obesity.

## MATERIALS AND METHODS

This study was performed with 30 obese patients (DF) (29 females, 1 male) and 30 control subjects (28 females, 2 males) applied to the department of internal medicine of Gulhane Military Medical School with the complaint of overweight. The DF and the control groups were select-

ed randomly. The mean ages of the DF and control groups were 46.27 and 45.93 years, respectively. The food intake of these groups were determined according to each subject's ideal weight and hardness of work. Their calories consisted of carbohydrates, lipids and proteins with the rate of 45%, 35% and 20% respectively.

We treated the DF group with diet and dexfenfluramine 30 mg/day and the control group with just diet. Body weight, gluteal circumference, the rate of abdominal/gluteal circumferences, the thickness of subcutaneous tissue were measured before the treatment and the second month of treatment in both groups. Abdominal circumference was measured from the umbilical line and gluteal circumference was measured from crista iliaca line. The thickness of subcutaneous tissue was measured by an apparatus specially designed for the purpose by a traditional firm.

Student's-t test was used in the statistical analysis.

## RESULTS

Measurements before the treatment were not different significantly in the control and DF groups. The weights of the DF group before and after the treatment were 91.06±11.38 kg and 81.46±11.14 kg (10.54%), respectively (p<0.005). The weights of the control group before the treatment and after 2 months were 89.03±11.79 kg and 86.40±11.57 kg (2.95%) respectively (p<0.005) (Table 1).

Body mass indexes in DF group before and after the treatment were 35.46±3.81 and 31.80±3.99 (10.15% decrease) respectively (p<0.005). These measurements in the control group were 33.56±4.05 and 32.80±3.79 (2.26% decrease) respectively (p<0.005). Abdominal circumference in DF group before and after the treatment

**Received:** March 24, 1995

**Accepted:** April 2, 1996

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**Table 1.** Mean values related to DF and control groups

	DF Group			Control Group			
	Before Treatment	After Treatment	Change (percentage)	Before Treatment	After Treatment	Change (percentage)	
Age	46.27	46.27		45.93	45.93		
Sex	Male	2		3	3		
	Female	28	2	27	27		
Weight (kg)	91.06±11.38	81.46±11.14	10.54	89.03±11.79	86.40±11.57	2.95	
Body Mass Index	35.46±3.81	31.86±3.99	10.15	33.56±4.05	32.80±3.79	2.26	
Abdominal circumference (cm)	113.56±9.00	101.93±9.82	10.24	111.43±9.74	107.53±9.58	3.49	
Gluteal circumference (cm)	122.10±9.31	109.90±9.71	9.99	120.41±9.21	116.13±9.60	3.55	
A/G circumference ratio	0.9283±0.0620	0.9213±0.0670	1.53	0.9279±0.063	0.9233±0.0610	0.49	
Thickness of subcutaneous tissue	Biceps (mm)	26.73±6.79	20.57±5.79	23.54	25.13±6.01	23.11 ±6.52	7.99
	Triceps (mm)	30.73±6.58	24.65±5.51	19.78	29.89±6.43	27.92±0.06	6.59
	Subscapular (mm)	38.23±8.49	30.65±8.05	19.82	37.71±8.31	34.69±7.96	8.00
	Interscapular (mm)	35.88±8.72	29.23±7.63	18.53	34.91±8.01	32.65±8.28	6.47

were 113.56±9.42 cm and 101.93±9.82 cm (10.24% decrease) respectively ( $p<0.005$ ). These measurements in the control group were 111.43±9.74 cm and 107.53±9.18 cm (3.49% decrease) respectively ( $p<0.005$ ).

Gluteal circumferences in DF group before and after the treatment were 122.10±9.31 cm and 109.90±9.71 (9.99% decrease), respectively ( $p<0.005$ ). These measurements in the control group were 120.41±9.21 cm and 116.13±9.60 cm (3.55% decrease). The rate of abdominal/gluteal circumferences in DF group before and after the treatment were 0.9279±0.0630 and 0.9233±0.0610 (1.83% decrease), respectively ( $p>0.05$ ). Thickness of subcutaneous tissue of DF group in biceps, triceps, below scapular region and interscapular region before and after treatment were 26.73±6.77 and 20.57±5.79 (23.45% decrease), 30.73±6.58 and 24.65±5.51 (19.78% decrease), 38.23±8.49 and 30.65±8.31 (19.82% decrease), 35.88±8.72 and 29.23±7.63 (18.53% decrease), respectively ( $p<0.005$ ). These measurements in the control group were 25.13±6.01 and 23.11±6.52 (15.99% decrease), 29.89±6.43 and 27.92±5.85 (6.59% decrease), 37.71±8.31 and 34.69±7.96 (8% decrease), 34.91±8.01 and 32.65±8.28 (6.47% decrease).

The values of DF group were compared with those of the control group. The mean weight loss was 2.95% in the control group and 10.54% in DF group ( $p<0.005$ ).

The mean BMI loss was 2.24% in the control group and 10.15% in DF group ( $p<0.005$ ) (Table 2).

When the values of DF and control group were compared in terms of the other parameters, it could be easily seen on Table 2 that weight and BMI loss in DF group was higher than that in the control group ( $p<0.005$ ).

## DISCUSSION

Dexfenfluramine which is used against obesity has two isomers, d- and l-norfenfluramine. Neurochemical effects of these isomers are different. Dexfenfluramine shows strong and selective serotonergic effect in the therapeutic doses, levo-isomer has less serotonin agonistic effect and has also antidopaminergic effect. Dexfenfluramine has more anorexigen and less sedative effects than the levo-isomer (4).

Rudolf et al, compared the weight loss in two groups of patients of which one group on low calorie diet and the other one on the treatment of dexfenfluramine 2x15 mg/day for 6 months. They reported that the weight loss in the group treated with dexfenfluramine was higher than that in the group on diet (5).

Finer et al, applied diet and placebo to 17 patients for 12 weeks, later they gave 2x15 mg dexfenfluramine to the same group for 12 weeks. At the end of the study

**Table 2.** The change at the end of two months in both control group and DF group in percent

	Control Group Change percentage (%)	DF Group Change percentage (%)	P Value
Weight (kg)	10.54	2.95	$p<0.005$
Body Mass Index	10.15	2.26	$p<0.005$
Abdominal circumference (cm)	10.24	3.49	$p<0.005$
Gluteal circumference (cm)	9.99	3.55	$p<0.005$
A/G circumference ratio	1.53	0.49	$p<0.005$
Thickness of subcutaneous tissue			
Biceps (mm)	23.45	7.99	$p<0.005$
Triceps	19.78	6.59	$p<0.005$
Subscapular	19.82	8.00	$p<0.005$
Interscapular	18.53	6.47	$p<0.005$

they found more weight loss when the patients were treated with dexfenfluramine (6).

In a another international study, 822 obese patients were treated with low calorie diet for one year. After they were seperated in two groups, one group (n=404) was treated with 2x15 mg dexfenfluramine and the other group (n=418) was given placebo. Both groups lost weight comparatively about the same amount in the first sixth months. But the weight loss in the second sixth months was higher in the group treated with dexfenfluramine (4).

In our study, the measurements in DF group were significantly different when the values before and after the treatment were compared. In addition, the parameters in DF group and in the control group were different significantly.

As a results, dexfenfluramine and diet is more effective than just diet in the treatment obesity.

#### **Deksfenfluramin'in obezite üzerine etkisi**

*Bu çalışmamızda deksfenfluraminin (DF) kilo kaybını indüklemesindeki etkinliği ve klinik kabul edilebilirliğini GATA İç Hastalıkları Polikliniği'ne kilo fazlalığından şikayeti olan veya en azından mevcut kilosunu idame ettirmeye çalışan 30 hasta üzerinde 2 aylık bir çalışma süresince uyguladık. Hastalar kalorileri, ideal kilolarına göre, günlük aktivitelerine bağlı*

*olarak kalori ihtiyaçları da ilave edilerek verildi. DF grubuna uygun olacak şekilde randomize olarak kontrol grubu oluşturduk. DF grubuna 30 mg/gün deksfenfluramin verilerek başlangıçta ve 2.ayın sonunda kilo, BMI, abdominal çevre, gluteal çevre, abdominal/gluteal (A/G) çevre oranı, cilt altı yağ dokuları kalınlıkları ölçülerek değerlendirildi. İkinci ayın sonunda DF olan grupta sadece diyet kısıtlaması yapılan gruba göre A/G çevre oranı hariç diğer parametrelerde önemli bir azalma tespit ettik.*

*[Türk J Med Res 1996; 14(2):71-73]*

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