

Climacteric syndrome and body-weight

L. M. Chiechi¹, R. Ferreri, M. Granieri, G. Bianco, C. Berardesca, P. Loizzi¹

¹*Institute of Gynaecology and Obstetrics*

¹*Chair of Physiopathology of Human Reproduction - University of Bari (Italy)*

Summary

A retrospective study on 181 women who attended the menopausal out-patient clinic of Physiopathology of Human Reproduction at Bari University Hospital throughout 1995, has been carried out to evaluate the relation between body-weight (valued as BMI) and the climacteric syndrome.

From the data we have discovered that hot flushes and sweating are more common in women with greater body-weight.

Also, women with BMI >23.8 were found to have a lower level of education.

Key words: BMI; Body-weight; Hot flushes; Climacteric syndrome.

Introduction

Interrelations between levels of steroids, life-styles, diet, obesity, and morbidity and mortality in postmenopause has been underlined by some authors [1].

In the last ten years, the incidence of obesity has been increasing in western culture, becoming a feature of affluent society [2].

Moreover, women are more obese than men and, after menopause, the prevalence of excess weight reaches 37% in women between 65-74 years old [3].

The relationships between weight and hormonal and ovulatory disorders have been emphasized by some authors [4, 5] and the concept that most adipose tissue increases peripheral conversion of androstenedione into estrone has been consolidated; indeed usually about 1-2% of circulating androstenedione is turned into estrone in peripheral fat [6]. This rate of conversion reaches 3% in postmenopause, and this increase depends not only on age but also on increased body-weight.

Since the climacteric syndrome has been linked with estrogenic deprivation [7] we wished to ascertain its occurrence with respect to body-weight.

To this end a retrospective study relating the climacteric syndrome to body-weight has been carried out on 181 women who attended the menopausal out-patient clinic of Physiopathology of Human Reproduction at Bari University Hospital.

Material and Methods

We examined 181 women who attended the menopausal out-patient clinic of Physiopathology of Human Reproduction of Bari University throughout 1995.

The sample of patients was constituted by two groups of women, all of whom were in established menopause, either spontaneous or surgical. Of these there were 68 women with BMI ≤23.8 and 113 women with BMI >23.8.

From the women with BMI >23.8 a subgroup was created with BMI > 27.

The following variables were examined to establish the relative importance of each:

- weight, age, parity, menarche;
- schooling, civil status, profession;
- smoking, coffee, alcohol consumption;
- mean arterial pressure (MAP), family anamnesis, personal anamnesis;

- climacteric syndrome;
- spontaneous menopause (the presence of amenorrhea or at least 6 months and with FSH >30 IU/ml and estradiol <20 pg/ml).

All patients under treatment with drugs that might have had any effect on the climacteric syndrome were excluded from the study.

BMI was calculated as weight (kg)/height(m)².

For the analysis of statistical data we used the chi-square test (and when necessary the Fischer's exact test) and Student's t test (two-tailed).

The data were processed by statistical software EPISTAT.

Results

The patients examined were divided into two groups, the first for the patients with BMI ≤23.8 (I group), and the second for patients with BMI >23.8 (II group); a subgroup with BMI >27 was examined from women with BMI >23.8.

The mean age of patients with BMI ≤23.8 resulted higher than those with BMI >27 (53.6 years vs 51.3 years p=0.03).

Statistically important, more women who finished university were found in the I group (17.6% vs 4.4% p=0.007, and 17.6% vs 4% p=0.02) (Tab. 1).

Most patients were married, non-smokers, non-drinkers and moderate consumers of coffee.

The largest component in the two groups was that of housewives, followed by that of office workers/teachers (Tab. 2).

Nullipara constituted 5.5% of the total sample (Tab. 3).

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Table 1. — BMI, age and education

AGE

	Mean	S.D.	Total
BMI<23.8	53.69	4.09	68
BMI>23.8	51.76	5.57	113
BMI>27	51.36	5.43	50

p=0.03

EDUCATION

	BMI<23.8 No. 68		BMI>23.8 No. 113			BMI>27 No. 50		
	No.	%	No.	%		No.	%	
None	1	1.47	5	4.42	p=0.26	3	6	p=0.2
Up to age 11	23	33.87	49	43.46	p=0.26	25	50	p=0.11
Up to age 14	11	16.17	25	22.12	p=0.43	10	20	p=0.76
Diploma	21	30.88	29	25.66	p=0.55	10	20	p=0.26
University degree	12	17.64	5	4.42	p=0.004	2	4	p=0.02

S.D. = standard deviation

Table 2. — BMI and civil status, profession, smoking, coffee and alcohol

CIVIL STATUS

	BMI<23.8 Total: 68		BMI>23.8 Total: 113			BMI>27 Total: 50		
	No.	%	No.	%		No.	%	
Married	59	86.76	106	93.8		46	92	
Single	2	2.94	3	2.65		2	4	
Widow	4	5.88	2	1.76		2	4	
Separated	3	4.41	2	1.76		0	0	

PROFESSION

	BMI<23.8 Total: 68		BMI>23.8 Total: 113			BMI>27 Total: 50		
	No.	%	No.	%		No.	%	
Housewife	39	57.35	69	61.06	p=0.73	34	68	p=0.32
Factory/Farm w.	1	1.47	3	2.65	p=0.51	2	4	p=0.38
Teacher/Office w.	20	29.41	21	18.58	p=0.13	8	16	p=0.14
Artisan	3	4.41	4	3.53	p=0.52	0	0	
Professional	1	1.47	1	0.88	p=0.61	1	2	p=0.66
Manager	1	1.47	4	3.53	p=0.37	2	4	p=0.38
Pensioner	3	4.41	11	9.73	p=0.15	3	6	p=0.50

SMOKING

	BMI<23.8 Total: 68		BMI>23.8 Total: 113			BMI>27 Total: 50		
	No.	%	No.	%		No.	%	
No smoker	49	72.05	87	76.99		37	74	p=0.98
<15 cigarette/day	5	7.35	8	7.07		3	6	p=0.53
16 or more cig./day	5	7.35	5	4.42		2	4	p=0.36
ex smoker	9	13.23	13	11.5		8	16	p=0.87

COFFEE

	BMI<23.8 Total: 68		BMI>23.8 Total: 113			BMI>27 Total: 50		
	No.	%	No.	%		No.	%	
<3 cup/day	65	95.58	101	89.38	p=0.31	46	92	p=0.33
4 or more cup/day	3	4.41	12	10.61		4	8	

ALCOHOL

	BMI<23.8 Total: 68		BMI>23.8 Total: 113			BMI>27 Total: 50		
	No.	%	No.	%		No.	%	
Non-drinker	55	80.88	94	83.18	p=0.84	44	88	p=0.43
Moderate drinker	13	19.11	19	16.81		6	12	
Strong drinker	0	0	0	0		0	0	

Table 3. — *BMI and parity*

	Nullipara		One or more children	
	No.	%	No.	%
BMI≤23.8	6	8.82	62	91.17
BMI>23.8	4	3.53	109	96.46
BMI>27	2	4	48	96

Table 4. — *BMI and menarche, menopause and MAP**MENARCHE*

	Mean (years)	S.D.	
BMI≤23.8	12.75	2.37	
BMI>23.8	12.56	1.64	
BMI>27	12.29	1.26	p=0.12

MENOPAUSE

	Mean (years)	S.D.	
BMI≤23.8	49.91	3.14	
BMI>23.8	49.52	3.87	p=0.55
BMI>27	49.24	3.14	p=0.43

MAP

	Nullipara		One or more children	
	No.	%	No.	%
BMI≤23.8	48	70.58	20	29.41
BMI>23.8	85	75.22	28	24.77
BMI>27	33	66	17	34

No differences were found between the two groups in age of menarche, age of spontaneous menopause and incidence of hypertension valued by MAP >105 (Tab. 4).

Analysing the incidence of climacteric syndrome, we noted an increase of occurrence in proportion to increased weight. Statistical relevance was reached for hot flushes (50% vs 69.9% p=0.01) and sweating (52.9% vs 69.02% p=0.04) which clearly are also among the symp-

toms mostly represented. These data are confirmed and emphasized if we analyse the obese group (50% vs 74% p=0.01 and 52.9% vs 78% p=0.009) (Tab. 5).

The women with BMI >23.8 had an incidence, statistically significant, in families with diabetes (13.2% vs 39.8% p=0.0002) and a greater occurrence of varix (2.9% vs 13.2% p=0.015) among the pathologies that we examined (Tab. 6).

Discussion

The increase of body-weight is, from our study, related to a greater occurrence of hot flushes and sweating.

Probably this increase of symptomatology pushes obese women to turn to their physician earlier.

The climacteric syndrome is by tradition correlated with deprivation of estrogens, but it is also conditioned by many other social, psychological and cultural factors whose influence has not yet been determined [8, 9].

Also from our study, it is understandable why women with BMI <23.8 have a greater level of schooling – because our culture tends to equate slenderness with attractiveness, it is likely that these same factors influence the climacteric syndrome.

Indeed the correlation of this syndrome with hormonal state has still not been fully clarified, and the results presented here linking hot flushes, sweating, and adipose tissue are in contrast with those of other authors [10].

However, even if the hot flushes and sweating certainly are not a nutritional problem, it could be useful to establish what degree of importance a decrease in weight could have, and therefore possibly decrease this symptomatology in women in climacteric with excess weight.

Consequently we believe further studies are necessary to investigate the connections between hormonal state, climacteric syndrome and weight, especially since this syndrome is often debilitating for the well-being of women and demands, more and more frequently, pharmacological intervention.

Table 5. — *Climacteric syndrome and BMI*

	BMI≤23.8		BMI>23.8			BMI>27		
	No.	%	No.	%		No.	%	
Hot flushes	34	50	79	69.91	p=0.01	37	74	p=0.01
Sweating	36	52.94	78	69.02	p=0.04	39	78	p=0.009
Sleeplessness	29	42.64	62	54.86	p=0.15	26	52	p=0.41
Headaches	13	19.11	32	28.31	p=0.22	14	28	p=0.36
Precordial pain	19	27.94	31	27.43	p=0.92	13	26	p=0.98
Arthralgia	35	51.47	67	59.29	p=0.38	27	54	p=0.93
Palpitations	26	38.23	57	50.44	p=0.14	27	54	p=0.13
Paresthesia	32	47.05	55	48.67	p=0.95	26	52	p=0.73
Depression	33	48.52	52	46.01	p=0.86	21	42	p=0.60
Anxiety	38	55.88	65	57.52	p=0.95	31	62	p=0.63
Asthenia	25	36.76	56	49.55	p=0.12	26	52	p=0.14
Dizziness	23	33.82	42	37.16	p=0.76	19	38	p=0.78

N.B.: Statistical comparison was done between the group of women with BMI ≤23.8 and those of women with BMI >23.8 and BMI >27.

Table 6. — BMI and family and personal anamnesis

FAMILY ANAMNESIS

	BMI<23.8		BMI>23.8			BMI>27		
	No.	%	No.	%		No.	%	
Diabetes	9	13.23	45	39.82	p=0.0002	24	48	p=0.00007
Hypertension	32	47.05	47	41.59	p=0.57	21	42	p=0.71
Ischemic cardiopathy	20	29.41	36	31.85	p=0.85	18	36	p=0.57
Uterine neoplasia	6	8.82	6	5.3	p=0.54	2	4	p=0.25
Other neoplasias	36	52.94	52	46.01	p=0.45	25	50	p=0.89
Thromboembolia	17	25.00	31	27.43	p=0.85	10	20	p=0.67
Varix	22	32.35	34	30.08	p=0.87	17	34	p=0.99
Spontaneous fracture	8	11.76	10	8.84	p=0.7	6	12	p=0.80
Ovarian neoplasia	1	1.47	1	0.88	p=0.61	0		

PAST AND ACTUAL PATHOLOGIC ANAMNESIS

	BMI<23.8		BMI>23.8			BMI>27		
	No.	%	No.	%		No.	%	
Diabetes	1	1.47	6	5.3	p=0.18	4	8	p=0.10
Hypertension	7	10.29	17	15.04	p=0.49	9	18	p=0.34
Hypercholesteremia	6	8.82	3	2.65	p=0.06	0	0	p=0.99
Lithiasis of cholecyst	5	7.35	12	10.61	p=0.32	7	14	p=0.19
Cardiopathy	2	2.94	5	4.42	p=0.47	1	2	p=0.61
Diseases of thyroid	2	2.94	7	6.19	p=0.27	2	4	p=0.56
Varix	2	2.94	15	13.27	p=0.015	8	16	p=0.01

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Address reprint requests to:
 LUIGI MARIO CHIECHI
 Via Cardinale M. Mimmi, 22
 70124 Bari (Italy)