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Antonio Ríos[abc,*], Ana López-Navas[ad], Marco Antonio Ayala-García[ae] y Pablo Ramírez[abc]

[a]*Proyecto Colaborativo Internacional Donante (International Collaborative Donor Project), Murcia, España*
[b]*Unidad de Trasplantes, Hospital Clínico Universitario Virgen de la Arrixaca. IMIB-Arrixaca, Murcia, España*
[c]*Departamento de Cirugía, Pediatría, Obstetricia y Ginecología, Universidad de Murcia, Murcia, España*
[d]*Departamento de Psicología, Universidad Católica San Antonio de Murcia, Murcia, España*
[e]*Hospital Regional General Número 58 del IMSS, Guanajuato, México*

[*] *Autor para correspondencia.*
Correos electrónicos: arzrios@um.es, arzrios4@gmail.com (A. Ríos).

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Menopausal in breast cancer and the effectiveness of a dietary supplement: Serotomama project☆

Menopausia en el cáncer de mama y la efectividad de un complemento alimenticio: proyecto Serotomama

Menopausal symptoms in the context of breast cancer patients are closely related to different treatments and impact the quality of life (QoL) of breast cancer patients,[1] and add to the already difficult experience associated with the diagnosis and management of breast cancer. Safe and effective therapies are needed that do not stimulate breast cell proliferation, avoid interference with cytochrome P450 metabolism.[2,3]

In this context, the SEROTOMAMA project hoped that this research would lead to the establishment of standard management practices that include the evaluation of menopausal symptoms in breast cancer patients, and aimed to establish the utility and safety of a food supplement for relieving menopausal symptoms. Secondary endpoints included impact on QoL and treatment compliance.

Principal considerations and conceptual framework enrolled 56 participants with breast cancer and climacteric symptoms such as hot flushes and/or sleep disturbances between February 2019 and February 2020. Patients without hot flashes and/or with active chemotherapy treatment and/or stage IV cancer at the time of the study were excluded.

For assessment of menopausal symptoms, we used the Spanish version of the menopause rating scale (MRS),[4] and the frequency of hot flashes; and patients' perception of QoL and health status were measured using the EORTC QLQ-C30 questionnaire[5] in relation to the patient's experience. The survey was carried out at baseline, at day 45 and day 90 (see Supplemental Appendix 1).

The treatment was started with two capsules per day divided into one capsule every 12 h with Serotogyn capsules (SeCap). The formula mixes ingredients that increase serotonin synthesis and inhibit serotonin reuptake is composed of L-Tryptophan (600 mg), vitamin B6 (4.2 mg), GABA (200 mg) and magnesium (56.4 mg).[6]

For the statistical analysis quantitative variables were described using the mean and standard deviation (SD), while frequency and percentage were used for qualitative variables. The Chi-square test was used to compare qualitative variables and Student's t-test was used for matched pairs.

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Statistical analysis was performed using the IBM SPSS version 22.0. A p value below 0.05 was considered statistically significant.

The mean age at baseline was 50 ± 8.5 years and 52 out of 56 women completed all three evaluations. Characteristics of the entire cohort are presented in Table 1. Breast-conserving surgery was performed in 31 patients (55.4%) and mastectomy in the remaining 25 patients (44.3%). The majority of patients, 54 patients (94.4%) received endocrine therapy and 55 women (98.2%) had amenorrhea. Median duration of vasomotor symptoms was 21 months (IQR: 8.0–57.0). In this cohort of patients, seven of the women (12.5%) had previously used a non-hormonal product.

During the observational period, patients reported significantly greater improvements in the total MRS scores

Table 1 – Demographic data, tumor subtype, oncology treatments and menopausal status.

BASELINE CHARACTERISTICS	N (%)
Age	50.6±8.5
Body Mass Index (BMI)	25.1±5.0
High familiar risk	15 (25)
BRCA1-2 carriers	2 (3.5)
Nulliparous	21 (37.5)
Breast cancer subtype (IHQ)	
ER +	43 (76.8)
HER 2 +	3 (5.4)
ER and HER 2+	6 (10.7)
ER and HER 2-	3 (5.4)
In situ carcinoma	1 (1.8)
Breast-conserving surgery	31 (55.4)
Mastectomy	25 (44.6)
Oncology primary treatment	14 (25.0)
- HER2+ either ER+ or ER- breast cancer: anti-HER2-targeted therapy (taxanes plus trastuzumab and pertuzumab)	5 (8.9)
- Endocrine therapy	2 (3.6)
Oncology adjuvant treatment	
- **Adjuvant chemotherapy**	20 (35.7)
- **Adjuvant chemotherapy plus trastuzumab**	4 (7.1)
- **Adjuvant endocrine therapy**	54 (94.4)
Tamoxifen	34 (60.7)
Tamoxifen plus non-steroidal aromatase inhibitor	4 (7.1)
non-steroidal aromatase inhibitor	16 (28.6)
Adjuvant radiotherapy	46 (82.1)
Duration of vasomotor symptoms (months)	21 (IQR:8.3-57.0)
Amenorrhea	55 (98.2)
Duration of amenorrhea	
< 1 year	17 (30.9)
1-3 years	17 (30.9)
3-5 years	7 (12.7)
> 5 years	14 (25.5)
Previous treatments to manage menopausal symptoms	7 (12.5)
Type of treatments	
Soy	3 (42.9)
Vitamin E and pollen extract	4 (57.1)

Table 2 – Menopausal rating scale, EORTC QLQ-C30 questionnaire and frequency of hot flashes.

MENOPAUSAL RATING SCALE (MRS) and EORTC QLQ-C30 questionnaire	Evaluations			p			FREQUENCY OF HOT FLASHES	1-5 hot flashes/24 h		5-10 hot flashes/24 h		10-15 hot flashes/24 h		>15 hot flashes/24 h	
	Baseline (N=56)	Day 45 (N=54)	Day 90 (N=52)	Baseline -Day 45	Baseline -Day 90	Day 45 -Day 90		Day 45	Day 90	Day 45	Day 90	Day 45	Day 90	Day 45	Day 90
MRS score	15.0±5.6	10.3±5.6	8.6±4.7	<0.0001	<0.0001	<0.0001	No hot flashes	3 (21.4)	3 (21.4)	0 (0)	1 (5.3)	0 (0)	2 (14.3)	0 (0)	0 (0)
Vegetative somatic symptoms	7.5±2.6	4.5±2.6	3.8±2.6	0.001	<0.0001	<0.0001	1-5 hot flashes/24 h	9 (64.3)	11 (78.6)	12 (57.1)	14 (73.7)	8 (57.1)	6 (42.9)	1 (20.0)	4 (60.0)
Psychological symptoms	4.4±3.0	3.3±2.8	2.2±2.4	<0.0001	0.001	<0.0001	5-10 hot flashes/24 h	2 (14.3)	0 (0)	8 (38.1)	4 (21.1)	4 (28.6)	3 (21.4)	4 (80.0)	2 (40.0)
Urogenital symptoms	3.1±2.4	2.4±2.2	2.3±2.1	<0.0001	<0.0001	<0.0001	10-15 hot flashes/24 h	0 (0)	0 (0)	0 (0)	0 (0)	1 (7.1)	2 (14.3)	0 (0)	0 (0)
QoL	5.1±1.6	5.5±1.3	5.7±1.3	0.106	0.287	0.412	>15 hot flashes/24 h	0 (0)	0 (0)	1 (4.8)	1 (4.8)	1 (7.1)	1 (7.1)	0 (0)	0 (0)
Health status	5.4±1.4	5.5±1.2	5.9±1.6	0.862	0.200	0.769									

compared to baseline: 15.1 ± 5.6 at baseline, 10.3 ± 5.6 at day 45, and 8.6 ± 4.7 at day 90 ($p < 0.001$). This improvement was reported for vasomotor symptoms (hot flashes, sweating, and sleep disorders), and for psychological and urogenital domains. The frequency of the hot flashes was also reduced. In the case of women with 1–5 hot flashes/24 h, three women had no hot flashes (21.4%) and 11 women maintained the same frequency (78.6%). In the subgroup of women who experienced 5–10 hot flashes/24 h, 14 women (73.7%) reduced the rate to 1–5 hot flashes/24 h. In women who presented 10–15 hot flashes/24 h, 6 women (42.9%) reduced the number of flashes to 1–5 hot flashes/24 h and two women presented no hot flashes at the final evaluation (Table 2).

We observed a tendency to improvement in patient QoL and health, with no statistical significance. Women obtained a value of 5.1 ± 1.6, 5.5 ± 1.3, and 5.7 ± 1.3 for QoL and 5.4 ± 1.4, 5.5 ± 1.2 and 5.9 ± 1.6 for the health status at baseline, day 45 and day 90.

For the drug safety analysis, in total, five patients (9.6%) reported just one adverse event, rated as ''mild'', such as metallic taste, dry mouth, weight gain and gastrointestinal disorders. None of the patients required hospital admission and no tumor recurrence was reported during the observational period.

Although menopausal symptoms are among the distressing issues following breast cancer treatment, evidence suggests that only a few women with a history of breast cancer are interviewed about these symptoms by medical professionals.[7] Specifically, in our group, only five patients had previously received treatment for hot flashes. In this line, SEROTOMAMA project working group to conduct a thorough menopausal evaluation, keeping in mind the physical and psychological factors in these patients.

Recent studies have examined non-hormonal therapies such as vitamin E, tryptophan and magnesium in the treatment of post-menopausal symptoms[8] and Rostock et al.[9] also reported a reduction in the MRS score (from 17.6 to 13.6) with Cimicifuga racemosa (black cohosh) in breast cancer patients taking tamoxifen. SeCap improved the MRS score in our data with minimal side effects. In this context, SeCap could be an option to improve the MRS score, with a trend, albeit non-significant, towards improved QoL and health.

The limitations of this study include a limited sample size and SEROTOMAMA project identified the need for further research in supportive interventions and the translation of findings into practice.

We strongly suggest that the treatment of menopausal symptoms in breast cancer survivors should be a reality.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.ciresp.2022.05.015.

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Juana María Brenes Sánchez[a*], Elisa Cedeira Vázquez[a], Amanda López Picado[b], María Eugenia Olivares Crespo[c], María Herrera De La Muela[a]

[a]*Breast Cancer Unit, Obstetrics and Gynecology, Women's Health Institute, Clíníco San Carlos Hospital, Madrid, Spain*
[b]*Clinical Trials and Research Unit, IdISSC, Health Department, International University of La Rioja, La Rioja, Spain*
[c]*Breast Cancer Unit, Psychology, Women's Health Institute, Clíníco San Carlos Hospital, Madrid, Spain*

[*]*Corresponding author.*
E-mail address: jbrenes@ucm.es (J.M.B. Sánchez).

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