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Double-blind placebo controlled trial of tibolone and oestrogen hormone therapy on oxidative stress associated to postmenopausal disturbances in women with early postmenopause: MOS study

Submission date 08/09/2017	**Recruitment status** No longer recruiting	[X] Prospectively registered [_] Protocol [_] Statistical analysis plan [_] Results [_] Individual participant data [_] Record updated in last year
Registration date 19/09/2017	**Overall study status** Completed	
Last Edited 11/10/2023	**Condition category** Nutritional, Metabolic, Endocrine	

Plain English summary of protocol

Background and study aims

Menopause is an expected event in a woman's life due to ovarian aging. Ovarian aging is produced by a series of hormonal changes that leads to the erratic production of estrogens that eventually leads to low estrogen levels (menopause). Menopause is associated with multiple symptoms that affects self-esteem and quality of life of the women. The marked reduction in estrogens has been shown to increase levels of oxidative stress (OS) in the body. Oxidative stress is an imbalance between the production of free radicals and the body's ability to neutralize them by antioxidans. Therefore menopause is a risk factor for OS, which may be due to an estrogenic deficiency and severity of symptoms. Hormone therapy (HT) with estrogen with or without progestin (synthetic progestogens), is a therapeutic alternative for women seeking help to ease their symptoms that occur after menopause, also with antioxidant effect. However, this type of therapy is controversial and can have negative short-term and long-term effects, even leading to treatment withdrawal. An alternative to HT has been the use of tibolone, a molecule with selective activity as estrogen, progestin and androgen, that has effect over postmenopausal symptoms and has not shown side effects, but it has not been clear whether it is an antioxidant molecule. The aim of this study is to determine the effect of tibolone on OS associated with mood disorders, climacteric symptoms, loss of muscle function and bone mineral density, that modify self-esteem and quality of life in postmenopausal women, compared with HT and placebo.

Who can participate?

Women aged 45-59 who have not had menstruation in 12 months.

What does the study involve?

Participants are randomly allocated to one of three groups. Those in the first group receive 2.5 mg/d of tibolone daily for 18 months. Those in the second group receive 0.625 mg/g of synthetic

conjugated estrogen as well as 5 mg/10 g of medroxyprogesterone. Those in the last group receive a placebo (a dummy medication). Participants are followed up at six months to measure their oxidative stress and other symptoms.

What are the possible benefits and risks of participating?
The treatment may improve participant's women postmenopausal symptoms and quality of life. There are no risks to the health for participants with hormone treatment or placebo.

Where is the study run from?
National Autonomous University of Mexico (Mexico)

When is the study starting and how long is it expected to run for?
November 2016 to April 2020 (updated 10/07/2020, previously: July 2019)

Who is funding the study?
National Autonomous University of Mexico (Mexico)

Who is the main contact?
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Contact information

Type(s)
Scientific

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Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers

N/A

Study information

Scientific Title
Menopause and Oxidative Stress Study (MOS): Effects of tibolone and oestrogen hormone therapy on oxidative stress associated to mood disturbances, insomnia, loss of muscle function and bone mineral density, that affect self-esteem and quality of life in postmenopausal women

Acronym
MOS

Study objectives
Considering that tibolone improves the symptoms present in postmenopausal period, and has a possible antioxidant activity, we assume that women with tibolone therapy will have a decrease in oxidative stress associated with postmenopausal disturbances, improving their quality of life and self-esteem, as well as those taking oestrogen therapy, and with an opposite effect to women receiving placebo.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Ethics Committee of the Universidad Nacional Autonoma de Mexico, 12/01/2017, ref: FESZ/DEPI /CI/004/17;

Study design
Prospective randomized double-blind trial single-centre

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Community

Study type(s)
Treatment

Participant information sheet
Not available in web format, please use the contact details below to request a patient information sheet

Health condition(s) or problem(s) studied
Postmenopausal women with or without mood disturbances, insomnia, loss of muscle function and bone mineral density, that affect self-esteem and quality of life.

Interventions

The treatment allocation is done using the simple random method with a scientific calculator.

Three groups are formed:
1. Women with 2.5 mg/d of tibolone
2. Women with 0.625 mg/d of synthetic conjugated oestrogens + 5 mg/10 d of medroxyprogesterone
3. Women taking placebo (pharmaceutical presentation similar to the treatment)
All the treatments are taken by oral administration.

The therapy follow up will be during 18 months with assessments at baseline and ever 6 months.

Intervention Type
Drug

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
tibolone

Primary outcome measure
Oxidative stress is measured using lipoperoxide levels by TBARS assay, erythrocyte superoxide dismutase (SOD), erythrocyte glutathione peroxidase (GPx), total plasma antioxidant status and uric acid, using Randox Laboratories kits, at baseline measurement prior to initiation of therapy, and every 3 months.

Secondary outcome measures
1. Hot flashes is measured using women's self-report diaries regarding how many total hot flashes they had per day during a week as well as information regarding the severity of each of these hot flashes (mild, moderate, severe, or very severe). The diaries are picked up at baseline and every 3 months.
2. Insomnia is measured using the Athens Insomnia Scale (Spanish version) at baseline and every 3 months
3. Depression is measured using the Zung Self-Rating Depression Scale (Spanish version) at baseline and every 3 months
4. Anxiety is measured using the Zung Self-Rating Anxiety Scale (Spanish version) at baseline and every 3 months
5. Quality of life and self-esteem is measured using the WHO Quality of Life-brief and the Coopersmith Self-Esteem Inventory (Spanish version), respectively, at baseline and every 3 months
6. Handgrip strength is measured with a dynamometer and the muscle mass by bioimpedance analysis, as muscle function tests, at baseline and every 6 months
7. Bone mineral density is measured using at the peripheral DXA in hip and column at baseline and every 6 months

Overall study start date
28/11/2016

Completion date
30/04/2020

Eligibility

Key inclusion criteria
1. Women aged 45-59 with intact uterus
2. At least 12 months of spontaneous amenorrhea and/or serum estradiol levels less 25 pg/mL and follicle stimulating hormone (FSH) levels higher 50 mU/mL

Participant type(s)
Healthy volunteer

Age group
Adult

Sex
Female

Target number of participants
n= 150, 50 by group

Key exclusion criteria
1. Women with cardiovascular, renal, hepatic or cancer disease
2. Antioxidant supplement intake for at least six months prior to the beginning of the study
2. Previous hormone therapy
3. Those who do not agree to participate in the study

Date of first enrolment
02/10/2017

Date of final enrolment
01/04/2020

Locations

Countries of recruitment
Mexico

Study participating centre
National Autonomous University of Mexico
Faculty of Higher Studies-Zaragoza
Guelatao # 66
Mexico City
Mexico
09230

Sponsor information

Organisation
National Autonomous University of Mexico

Sponsor details
Av. Universidad 3000
Universidad Nacional Autónoma de México CU
Mexico City
Mexico
04510

Sponsor type
University/education

Website
http://www.zaragoza.unam.mx/

ROR
https://ror.org/01tmp8f25

Funder(s)

Funder type
University/education

Funder Name
National Autonomous University of Mexico

Results and Publications

Publication and dissemination plan
Planned publication in a high-impact peer reviewed journal.The study protocol is in Spanish and it is not available on line. Please contact the author to request a copy.

Intention to publish date
30/04/2021

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are/will be available upon request from Dr. Martha A. Sanchez-Rodriguez, e-mail: masanrod@yahoo.com.mx or request a copy in the institutional website: http://condor.zaragoza.unam.mx /fesz_website_2011/?page_id=4004.

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Other publications	Oxidative Stress Risk Is Increased with a Sedentary Lifestyle during Aging in Mexican Women	25/10/2021	11/10/2023	Yes	No