ISRCTN13049111 https://doi.org/10.1186/ISRCTN13049111

Bioavailability study of a new testosterone orodispersible tablet (ODT) administered as single doses of 6 and 12 mg to healthy postmenopausal women

Submission date
14/10/2015

Recruitment status
No longer recruiting

Registration date
16/10/2015

Overall study status
Completed

Last Edited
04/11/2020

Condition category
Other

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[ ] Record updated in last year

Plain English summary of protocol

Background and study aims
Testosterone is the most powerful of the male sex hormones (androgens) and is responsible for the secondary sexual characteristics seen in men, such as a deeper voice and facial hair. Although testosterone is considered to be a “male hormone”, it is also produced in women, although in much smaller quantities. As men get older, testosterone levels fall. When a man has low testosterone, it can cause them to lose their sex drive, experience erectile dysfunction and even depression. In some cases a man may need to take artificial testosterone in order to maintain their natural levels (hormone replacement therapy). This type of therapy is usually given as an injection, as when pure testosterone is taken by mouth (orally) most of it is broken down and so doesn’t increase blood levels. A new form of oral testosterone has been developed into a tablet which is orodispersible (dissolves in the mouth). These tablets contain a chemical called hydroxypropyl-β-cyclodextrin (HPBCD) which helps them to dissolve in saliva so that the testosterone can be absorbed by the body. The aim of this study is to find out whether taking HPBCD orodispersible tablets (ODT) can help to increase levels of testosterone in the blood. The drug is being given to women who have been through the menopause (as they have much less testosterone than men with low testosterone levels).

Who can participate?
Healthy women between the ages of 45 and 65 who have been through the menopause.

What does the study involve?
Participants are randomly allocated into one of three groups, all of whom will receive each of the three treatments in a different order. The first treatment involves allowing a 6mg HPBCD ODT tablet to dissolve on the tongue, the second treatment involves allowing a 12mg HPBCD ODT tablet dissolve on the tongue and the third treatment involves swallowing a 12mg HPBCD ODT tablet with water. Participants wait for 3 days in between receiving each treatment (wash-out period). At regular intervals on the day that each dose is taken, participants have blood samples taken so that testosterone levels can be measured in the laboratory.

What are the possible benefits and risks of participating?
There are no benefits of participating in the study. There are no significant risks of participating, as the doses given are very small and unlikely to trigger unwanted side-effects.

Where is the study run from?
CROSS Research S.A. Phase I Unit (Switzerland)

When is the study starting and how long is it expected to run for?
July 2014 to October 2015

Who is funding the study?
IBSA Institut Biochimique S.A. (Switzerland)

Who is the main contact?
Dr Milko Radicioni

Contact information

Type(s)
Scientific

Contact name
Dr Milko Radicioni

ORCID ID
https://orcid.org/0000-0002-3940-8375

Contact details
CROSS Research Phase I Unit
Via F. A. Giorgioli 14
Arzo
Switzerland
CH-6864

Additional identifiers

Protocol serial number
CRO-PK-14-287

Study information

Scientific Title
Bioavailability study of a new testosterone orodispersible tablet (ODT) administered as single doses of 6 and 12 mg to healthy postmenopausal women. Single dose, open, randomised, 3-period, 3-way cross-over exploratory bioavailability study

Study objectives

The aim of this study is to evaluate the pharmacokinetic (PK) profile of the new oral testosterone ODT formulation administered under fasting conditions at the doses of 6 and 12 mg. The safety profile after single dose administration will be evaluated during the whole study.

Ethics approval required
Old ethics approval format

Ethics approval(s)
1. Ethics Committee Cantonale (Comitato Etico Cantonale), 15/09/2014, ref: CE2832
2. Federal Health Authorities (Swissmedic), 09/04/2015, ref: 2015DR1053

Study design
Single-dose open-randomised 3-period 3-way cross-over exploratory bioavailability study

Primary study design
Interventional

Study type(s)
Other

Health condition(s) or problem(s) studied
Healthy adult volunteers under fasting conditions

Interventions
The study was conducted in healthy post-menopausal women as a model to avoid the problem of endogenous levels and fluctuations of testosterone in the pharmacokinetics results. Post-menopausal women have in fact baseline testosterone levels of less than 1.00 ng/mL, as compared to hypogonadal men with levels of of less than 350 ng/dL.
Each volunteer received one single dose of the following test treatments in 3 periods separated by wash-out intervals of at least 3 days, for a minimum study duration of 9 days, screening visit included:
1. 1 testosterone HPBCD ODT 6 mg disintegrated on the tongue (without chewing)
2. 1 testosterone HPBCD ODT 12 mg disintegrated on the tongue (without chewing)
3. 1 testosterone HPBCD ODT 12 mg swallowed with water
The sequence of the 3 test treatments in the study periods was assigned to each volunteer according to a computer generated randomisation list. The follow-up was performed only in case of adverse events, until resolution or stabilization.

Intervention Type
Drug

Phase
Phase I

Drug/device/biological/vaccine name(s)
Testosterone hydroxypropyl-β-cyclodextrin (HPBCD)

Primary outcome(s)

Baseline-corrected rate (Cmax) and extent (AUC0-t) of exposure of total testosterone, free-testosterone and 5α-dihydro-testosterone (DHT) after single dose administration of the test treatments at baseline, 10, 20, 30, 45 minutes, 1, 1.5, 2, 3, 4, 5, 6 and 8 hours post-dose

Key secondary outcome(s))
1. tmax and baseline-corrected AUC0-∞, t1/2, and λz of total testosterone, free-testosterone and DHT at baseline, 10, 20, 30, 45 minutes, 1, 1.5, 2, 3, 4, 5, 6 and 8 hours post-dose
2. Treatment-Emergent Adverse Events (TEAEs), vital signs (BP, HR), body weight, laboratory parameters (hormones included), ECG after administration of each test treatment.

Completion date
07/10/2015

Eligibility

Key inclusion criteria
1. Women aged between 45 and 65 inclusive
2. Post-menopausal status for at least 1 year
3. Body Mass Index (BMI): 18.5-30 kg/m2 inclusive
4. Vital signs: systolic blood pressure 100-139 mmHg, diastolic blood pressure 50-89 mmHg, heart rate 50-90 bpm
5. Endogenous testosterone levels < 3.5 nmol/L (about 1.00 ng/mL)
6. Normal or not clinically relevant abnormal cervical smears at PAP test
7. Normal or not clinically relevant abnormal mammograms
8. Ability to provide informed consent

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Sex
Female

Key exclusion criteria
1. ECG 12-leads (supine position): clinically relevant abnormalities
2. Clinically relevant abnormal physical findings
3. Clinically relevant abnormal laboratory values
4. Ascertained or presumptive hypersensitivity to the active principle (testosterone) and/or formulations' ingredients
5. Relevant history of cardiovascular, pulmonary, hepatic, renal, haematological, gastrointestinal, immunological, dermatological, endocrine, genito-urinary, neurological or psychiatric diseases

that could interfere with the aim of the study; malignant neoplasia
6. Intake of any drug affecting the cytochrome P450 for 28 days before the first dose
7. Any hormonal replacement therapy (estrogen-progestin formulations) within 4 weeks, any sex hormone depot injection within 6 months and any sex hormone implants within 5 years

Date of first enrolment
27/04/2015

Date of final enrolment
30/06/2015

Locations

Countries of recruitment
Switzerland

Study participating centre
CROSS Research S.A
Phase I Unit
Via F.A. Giorgioli 14
Arzo
Switzerland
CH-6864

Sponsor information

Organisation
IBSA Institut Biochimique S.A.

ROR
https://ror.org/051tj3a26

Funder(s)

Funder type
Industry

Funder Name
IBSA Institut Biochimique SA

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Stored in repository