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Ectopic activation of TRPM8 with a newly-developed agonist relieves dry-eye symptoms

Submission date	Recruitment status	[_] Prospectively registered
01/09/2015	No longer recruiting	[_] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
02/09/2015	Completed	[X] Results
Last Edited	**Condition category**	[_] Individual participant data
23/01/2019	Eye Diseases	

Plain English summary of protocol

Background and study aims
Dry eye disease occurs when the eyes do not make enough tears or the tears evaporate too quickly, leading to the eyes drying out and becoming inflamed (red and swollen) and irritated. Our aim is to study the effect of daily topical administration of a drug called a TRPM8 agonist in patients with mild to moderate dry eye disease.

Who can participate?
Patients with mild to moderate dry eye.

What does the study involve?
Patients are randomly allocated to be treated with either TRPM8 agonist dissolved in distilled water, or distilled water only. Study medications will be topically applied to the upper eyelid 4 times daily (every 6 hours) for 2 weeks with using a stick filled with TRPM8 agonist or distilled water only.

What are the possible benefits and risks of participating?
The treatment may relieve dry eye related eye symptoms. There are no risks involved in this study.

Where is the study run from?
Department of Ophthalmology, Chonnam National University Medical School and Hospital (South Korea).

When is the study starting and how long is it expected to run for?
From January 2015 to August 2015.

Who is funding the study?
Investigator initiated and funded (South Korea).

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
Effect of daily topical administration of TRPM8 agonist in patients with mild to moderate dry eye disease: a single-center randomized double-masked vehicle-controlled study

Study objectives
Dry eye is a disorder of the tear film due to tear deficiency or excessive evaporation, which causes damage to the interpalpebral ocular surface and is associated with symptoms of ocular discomfort. Daily topical administration of TRPM8 agonist may increase basal tear production in patients with mild to moderate dry eye disease. Also, it may provide symptom relief and improve patients quality of life related to ocular discomfort.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Institutional Review Board of Chonnam National University Hospital, 10/07/2014, IRB No. CNUH 2014-171

Study design
Single-center randomized double-masked vehicle-controlled study

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Hospital

Study type(s)
Treatment

Participant information sheet

Health condition(s) or problem(s) studied
Dry eye

Interventions
Patients will be randomized to be treated with TRPM8 agonist (1-(Diisopropyl-phosphinoyl)-nonane) dissolved in distilled water (2 mg/mL) or vehicle (distilled water) topically delivered using the stick and topically applied in the margin of upper eyelid 4 times daily (every 6 hours) for 2 weeks.

Intervention Type
Drug

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
1-(Diisopropyl-phosphinoyl)-nonane

Primary outcome measure
1. Basal tear secretion (baseline, 1 week, and 2 weeks follow-up) – assessed by Schirmer score
2. Symptom score assessed by three questionnaires at baseline, 1 week, and 2 weeks follow-up:
2.1. Visual analogue score (VAS)
2.2. Ocular surface disease index (OSDI)
2.3. Computer vision syndrome (CVS) related symptoms

Secondary outcome measures
1. Tear-film break up time (baseline, 1 week, and 2 weeks follow-up) - the time before the defect of fluorescein dye appeared in the stained tear film was measured and recorded (measured TBUT 3 times and averaged)
2. Keratoepitheliopathy score (baseline, 1 week, and 2 weeks follow-up) – after staining the

cornea with fluorescein dye, the score was obtained by multiplying the stained area (0-3) by stained density (0-3)
Area (0, no punctate staining; 1, area occupied less than 1/3 of the cornea; 2, area occupied 1/3 to 2/3 of the cornea; 3, area occupied greater than 2/3 of the cornea)
Density (0, no punctate staining; 1, sparse density; 2, moderate density; 3, high density and the overlapped lesions)

Overall study start date
01/01/2015

Completion date
31/08/2015

Eligibility

Key inclusion criteria
1. Dry eye symptoms for more than 3 months despite the use of artificial tears
2. Low tear film break-up time (TBUT) (≤ 7 seconds)
3. Low Schirmer score (≤ 10 mm/5 min)
4. Presence of corneal and conjunctival epithelial damage

Participant type(s)
Patient

Age group
Adult

Sex
Both

Target number of participants
At least 40 patients (20 patients in each group)

Key exclusion criteria
1. History of any ocular disease other than DED
2. Meibomian gland dysfunction
3. Contact lens use
4. Ocular trauma or surgeries
5. Presence of an uncontrolled systemic disease that could affect ocular surface condition
6. Punctual plugs
7. Used any eye drops other than artificial tears
8. Used any systemic medication that can cause dry eye
9. Pregnant

Date of first enrolment
01/07/2015

Date of final enrolment
01/08/2015

Locations

Countries of recruitment
Korea, South

Study participating centre
Department of Ophthalmology
Chonnam National University Medical School and Hospital
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Sponsor information

Organisation
Chonnam National University Medical School and Hospital

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Sponsor type
University/education

ROR
https://ror.org/00f200z37

Funder(s)

Funder type
Other

Funder Name
Investigator initiated and funded

Results and Publications

Publication and dissemination plan
To be confirmed at a later date

Intention to publish date

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	26/06/2017	23/01/2019	Yes	No
Results article	results	15/11/2018	23/01/2019	Yes	No