Neuropeptide Y and Sympathovagal Balance

CLINICALTRIALS.GOV IDENTIFIER	RECRUITMENT STATUS	FIRST POSTED	LAST UPDATE POSTED
NCT03933787	COMPLETED	MAY 1, 2019	MAY 1, 2019

STUDY DESCRIPTION

Brief Summary

Neuropeptide Y (NPY) activates the sympathetic and vagal nervous systems through the Y1 and Y2 receptors. This double-blind placebo-controlled crossover study investigated the sympathovagal balance during three exercises on a cycloergometer in healthy volunteers treated with saxagliptin (DPP4 inhibitor).

Condition or Disease: Physical Activity
Sympathetic Nervous System
Secretion; Catecholamine

Intervention/treatment: Drug: Saxagliptin 5mg
Drug: Placebo oral capsule
Other: ergometric test in healthy volunteers

Phase: Early Phase 1

DETAILED DESCRIPTION

Pharmacological studies indicate that NPY has a role as a co-transmitter associated with catecholamines to maintain cardiovascular homeostasis. The development of a selective and sensitive assay of NPY1-36 (vasoconstrictor) and NPY3-36 (vasodilator) by LC-MS/MS will confirm this modulating role of NPY in sympatho vagal balance in healthy young subjects. This project should lead to a better understanding of the contribution of NPY to exercise physiology through a double-blind randomized study using a DPP4 inhibitor (Saxagliptin) used for the treatment of type 2 diabetes, blocking the formation of NPY3-36 and thus enhancing the effect of NPY1-36. The interest of this study will be to find targets other than adrenergic receptors in the regulation of sympathetic and parasympathetic systems during exercise.

STUDY DESIGN

Study Type: Interventional

Estimated Enrollment : 7 participants

Intervention Model : Crossover Assignment

Masking: Quadruple (Participant, Care Provider, Investigator, Outcomes Assessor)

Primary Purpose: Basic Science

Official Title: Neuropeptide Y Function in the Sympathovagal Balance During an Ergometric Test in Healthy Volunteers

Actual Study Start Date: June 2018

Actual Primary Completion Date: July 2018

Actual Study Completion Date: April 2019

ARMS AND INTERVENTIONS

Arm	Intervention/treatment
Active Comparator: Saxagliptin in a tablet two tablets containing each 5 mg of Saxagliptin in a blister: one tablet provided to each volunteer in a blister 16 hours before the trial and one tablet provided two hours before the clinical trial	Drug: Saxagliptin 5mg Randomised study: session 1 the volunteer will receive either saxagliptin or placebo. Session 2 the volunteer will receive the placebo or saxagliptin Other: ergometric test in healthy volunteers The volunteers will undergo an ergometric test in each session
Placebo Comparator: mannitol in a tablet two tablets containing mannitol in a blister: one tablet provided to each volunteer in a blister 16 hours before the trial and one tablet provided two hours before the clinical trial	Drug: Placebo oral capsule Randomised study: session 1 the volunteer will receive either saxagliptin or placebo. Session 2 the volunteer will receive the placebo or saxagliptin Other: ergometric test in healthy volunteers The volunteers will undergo an ergometric test in each session

OUTCOME MEASURES

Primary Outcome Measures: 1. Heart rate change variability assessed at the end of each exercise [Time Frame: 5 hours and 30 minutes]
RMSSD (Root mean square of successive RR interval differences) measurement
2. Heart rate change variability assessed at the end of each exercise [Time Frame: 5 hours and 30 minutes]
normalized low frequency (nLF) measurement

Secondary Outcome Measures: 1. NPY 1-36 secretion [Time Frame: 5 hours and 30 minutes]
Peak Plasma Concentration [Cmax]

2. NPY 3-36 secretion [Time Frame: 5 hours and 30 minutes]
Half-life [t1/2]
3. NPY3-36 secretion [Time Frame: 5 hours and 30 minutes]
Area under the plasma concentration versus time curve [AUC]
4. NPY3-36 secretion [Time Frame: 5 hours and 30 minutes]
Peak Plasma Concentration [Cmax]
5. Catecholamine secretion [Time Frame: 5 hours and 30 minutes]
Half-life [t1/2]
6. Catecholamine secretion [Time Frame: 5 hours and 30 minutes]
Area under the plasma concentration versus time curve [AUC]
7. Catecholamine secretion [Time Frame: 5 hours and 30 minutes]
Peak Plasma Concentration [Cmax]
8. NPY 1-36 secretion [Time Frame: 5 hours and 30 minutes]
half-life [t1/2]
9. NPY 1-36 secretion [Time Frame: 5 hours and 30 minutes]
Area under the plasma concentration versus time curve [AUC]

ELIGIBILITY CRITERIA

Ages Eligible for Study: 24 to 30 Years (Adult)

Sexes Eligible for Study: Male

Accepts Healthy Volunteers: Yes

Criteria

Inclusion Criteria:
1. Healthy male subjects aged between 18 and 30 years.
2. Non smoking
3. Practicing at least 3 hours physical activity per week
4. Absence of significant findings in the medical history and physical examination as judged by the Investigator, especially for cardiovascular, pulmonary, haematological and nervous systems
5. Ability to understand the procedures, agreement to participate and willingness to give written informed consent
6. Co-operative attitude and availability for scheduled visits over the entire study period.
Exclusion Criteria:
1. Use of any medication the week prior to study. Paracetamol is permissible before and during study as a concomitant medication but only with Investigator's permission.
2. History of major cardiovascular, pulmonary, hepatic, immunological, renal, haematological, gastrointestinal, genitourinary, neurological, or rheumatologic disorders
3. rhinosinusitis
4. Urinary tract infection
5. Hypertension defined as supine blood pressure >150/90 mmHg or recurrent hypotensive events considered as clinically relevant or documented orthostatic hypotension

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CONTACTS AND LOCATIONS

Contacts

Locations

Switzerland, Vaud	Service de Néphrologie	Lausanne

Sponsors and Collaborators

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Investigator

Principal Investigator :	Eric Grouzmann, Dr	Centre Hospitalier Universitaire Vaudois

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MORE INFORMATION

Responsible Party :	Eric Grouzmann
ClinicalTrials.gov Identifier :	NCT03933787
Other Study ID Numbers :	2018-00569
First Posted :	May 1, 2019
Last Update Posted :	May 1, 2019
Last Verified :	April 2019

Individual Participant Data (IPD) Sharing Statement:	
Plan to Share IPD:	Undecided
Plan Description:	all IPD that underlie results in a publication
Studies a U.S. FDA-regulated Drug Product:	No
Studies a U.S. FDA-regulated Device Product:	No
Product Manufactured in and Exported from the U.S.:	Yes
Keywords provided by Eric Grouzmann:	*neuropeptide Y,catecholamine, exercise*