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Effects of olanzapine standard oral tablets and orally disintegrating tablets on gut hormones, glucose metabolism and pituitary hormones

Submission date	Recruitment status
11/04/2007	No longer recruiting
Registration date	**Overall study status**
11/04/2007	Completed
Last Edited	**Condition category**
05/11/2010	Nutritional, Metabolic, Endocrine

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[X] Results
[ ] Individual participant data

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Scientific

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Additional identifiers

Protocol serial number
N/A

Study information

Scientific Title

Study objectives
Novel antipsychotic drugs cause weight gain and type two diabetes mellitus in a large percentage of patients. The mechanism of the serious metabolic side effects of these drugs is unclear. Olanzapine orally disintegrating tablet has been found to cause less weight gain than olanzapine standard oral tablet. We hypothesised that these two different forms of olanzapine differ in their effect of gut peptide release to explain their dramatically distinct impact on body weight.

To further uncover the mechanism through which olanzapine causes weight gain and diabetes mellitus we also studied the impact of olanzapine on spontaneous release of various hormones (i. e. cortisol, prolactin, leptin, adinponectin, insulin, glucose, Free Fatty Acids [FFA] and Triglycerides [TG]).

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approval received from the ethics board in the Leiden University Medical Center (LUMC) (Commissie Medische Ethiek LUMC) on the 28th February 2006 (ref: P06-005/YR/kdw).

Study design
Randomised, active controlled, crossover trial

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Diabetes Mellitus type two (DM type II)

Interventions
Subjects are studied after intervention with olanzapine standard tablet (10 mg/day for eight days), olanzapine orally disintegrating tablet (10 mg/day for eight days) and without intervention (control). On day seven subjects were submitted in the clinical reasearch unit, antropometric measures, body composition and fuel oxidation were measured.

Blood samples for glucose, insulin, FFA and TG were drawn every ten minutes, from 30 minutes before until two hours after dinner and breakfast. Blood samples for gut peptides were drawn every 20 to 30 minutes from one hour before until four hours after dinner and breakfast. Samples for determination of Adrenocorticotropic Hormone (ACTH), cortisol, Prolactin (PRL) (every ten minutes), leptin (every 20 minutes) and adiponectin (every 30 minutes) were drawn from 00:00 until 12:hh hours.

Physical activity was recorded with actimeters for three days, during the different experimental conditions.

Intervention Type

Drug

Phase
Not Specified

Drug/device/biological/vaccine name(s)
Olanzapine standard oral tablets and orally disintegrating tablets

Primary outcome(s)
1. Antrhopometric measurements: BMI, Waist:Hip Ratio (WHR), body composition
2. Indirect calorimetry: Resting energy expenditure, respiratory quotient, glucose and fat oxidation
3. Plasma concentrations: insulin, glucose, FFA, TG, Peptide YY3-36 (PYY), Pancreatic Polypeptide (PP), Glucagon-like peptide-1 (GLP-1), Glucagon-like peptide-2 (GLP-2), Oxyntomodulin (OXM), Cholecystokinin (CCK), Ghrelin, ACTH, cortisol, PRL, Adiponectin, Leptin

All primary end points were measured on day seven and eight of the intervention.

Key secondary outcome(s))
Physical activity, this was measured for three days between day one and four of the intervention.

Completion date
26/09/2006

Eligibility

Key inclusion criteria
1. Healthy men without a positive family history of schizophrenia
2. Age between 20 and 40 years
3. Fasting plasma glucose less than 6 mmol/L
4. Body Mass Index (BMI) between 20 and 26 kg/m^2

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Sex
Male

Key exclusion criteria
1. Fasting plasma glucose greater than 6 mmol/L
2. BMI greater than 26 kg/m^2
3. Psychiatric disorder and/or use of antipsychotic or antidepressants drugs at present or in the past
4. Gastrointestinal operations in the past

5. Any significant chronic disease
6. Renal, hepatic or endocrine disease
7. Use of medication known to influence lipolysis and or glucose metabolism
8. Total cholesterol greater than 7 mmol/L and or triglycerides greater than 2 mmol/L
9. Recent weight changes or attempts to lose weight (greater than 3 kg weight gain or loss, within the last three months)
10. Difficulties to insert an intravenous catheter
11. Smoking (current)
12. Alcohol/drug abuse
13. Severe claustrophobia
14. Recent blood donation (within the last two months)
15. Recent participation in other research projects (within the last three months), participation in two or more projects in one year
16. Extensive sporting activities (more than ten hours of exercise per week)

Date of first enrolment
10/04/2006

Date of final enrolment
26/09/2006

Locations

Countries of recruitment
Netherlands

Study participating centre
Department Endocrinology and Metabolism
Leiden
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Sponsor information

Organisation
Leiden University Medical Centre (LUMC) (The Netherlands)

ROR
https://ror.org/027bh9e22

Funder(s)

Funder type

Industry

Funder Name
Eli Lilly (The Netherlands)

Funder Name
Dutch Diabetes Research Fund (The Netherlands)

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/09/2010		Yes	No