

Treatment of impaired sperm quality with micronutrients

Submission date 14/08/2016	Recruitment status No longer recruiting	☐ Prospectively registered
		☐ Protocol
Registration date 07/10/2016	Overall study status Completed	☐ Statistical analysis plan
		☒ Results
Last Edited 12/12/2016	Condition category Urological and Genital Diseases	☐ Individual participant data

Plain English summary of protocol

Background and study aims

Infertility is when a couple cannot get pregnant (conceive), despite having regular unprotected sex. 10-15% of reproductive-aged couples trying to achieve pregnancy remain childless. Nearly half of all cases of infertility are due to male infertility. Male infertility is caused by abnormal sperm. In 45% of subfertile or infertile men the cause is unknown. This condition is called idiopathic (oligo)±(atheno)±(terato)spermia (iOAT). There are reports showing that the supplement l-carnitine alone or in combination with other micronutrients improves sperm parameters (i.e., number, movement, shape of sperm). Micronutrients, often referred to as vitamins and minerals, are parts of the diet which are required by the body in small amounts. The aim of this study is to compare the short-term effects of a combination of eight micronutrients including l-carnitine versus l-carnitine alone on sperm parameters as a treatment for iOAT.

Who could participate?

Infertile men aged 20-60

What did the study involve?

Participants are allocated to one of two groups. Participants in group 1 are given l-carnitine twice a day for three months. Participants in group 2 are given a combination of eight micronutrients including l-carnitine once a day for three months. Each participant provides two sperm samples before and then again after the treatment period. The samples are then analysed for sperm count and mobility (how well they move).

What were the possible benefits and risks of participating?

Participants may benefit from improved sperm quality. No side effects are expected.

Where was the study run from?

Karl Landsteiner Institut für zellorientierte Therapie in der Gynäkologie (Austria)

When did the study start and how long did it run?

January 2004 to January 2014

Who was funding the study?
Investigator initiated and funded

Who is the main contact?

1. Prof. Dr Martin Imhof
2. Dr Markus Lipovac

Contact information

Type(s)

Public

Contact name

Dr Markus Lipovac

ORCID ID

<https://orcid.org/0000-0003-3583-6601>

Contact details

Wiener Ring 3-5
Korneuburg
Austria
2100

Type(s)

Scientific

Contact name

Prof Martin Imhof

Contact details

Wiener Ring 3-5
Korneuburg
Austria
2100

Additional identifiers

Protocol serial number

Sperm parameter protocol 1.03/2014

Study information

Scientific Title

Comparison of the effect of a combination of eight micronutrients versus a standard mono preparation on sperm parameters

Study objectives

To compare the short term effects of a combination of eight micronutrients including l-carnitine vs. a mono-substance (l-carnitine alone) on sperm parameters showing superiority of the combination over the mono-substance concerning different semen parameters.

Ethics approval required

Old ethics approval format

Ethics approval(s)

Local ethics board of the General Teaching Hospital Korneuburg, Austria, 14/12/2004, No.5/2004

Primary study design

Interventional

Study design

Double-centre prospective open-labelled non-randomized study

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Reduced reproductive capability in men presenting an unexplained (unidentified) abnormal semen analysis

Interventions

A total of 299 participants who met the inclusion criteria were invited to participate. Participant number 1 was allocated to group 1, participant number 2 to group 2, participant number 3 to group 1 etc, to receive treatment for three months with:

1. A mono-substance (500 mg l-carnitine/twice a day, n=156)
2. A combined compound (440 mg l-carnitine + 250 mg l-arginine + 40 mg zinc + 120 mg vitamin E + 80 mg glutathione + 60 µg selenium + 15 mg coenzyme Q10 + 800 µg folic acid/once a day, n=143; Profertil®, Lenus Pharma GmbH, Vienna, Austria)

Semen analysis was performed at baseline and after three months of treatment.

Intervention Type

Supplement

Primary outcome(s)

The following sperm parameters were analysed at baseline and after 3 months of treatment:

1. Sperm volume (ml)
2. Sperm density (mio/ml)
3. Overall, fast and slow progressive motility (expressed as %)
4. % of sperm with normal morphology

All parameters were defined according to WHO guidelines (4th edition). Sperm analysis was performed with an automatic, computer analysing system called Sperm Class Analyzer® CASA System, by MICROPTIC SL, company based in Barcelona, Spain.

Key secondary outcome(s)

N/A

Completion date

20/01/2014

Eligibility

Key inclusion criteria

1. Male
2. 20 to 60 years of age
3. Suffering from at least one year of subfertility
4. At least one recent pathological semen analysis result

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Sex

Male

Key exclusion criteria

1. Azoospermia
2. Aspermia
3. Varicocele
4. Recent urogenital infections
5. Hormonal disorders.

Date of first enrolment

11/01/2004

Date of final enrolment

15/10/2013

Locations

Countries of recruitment

Austria

Study participating centre

IMI Kinderwunschlinik

Dorotheergasse 7

Vienna

Austria

1010

Study participating centre
Med 19 Study Center of Vienna
Grinzingerstrasse 83
Vienna
Austria
1190

Sponsor information

Organisation

Karl Landsteiner Institute of Cell-Based Treatment in Gynecology (Karl Landsteiner Institut für zellorientierte Therapie in der Gynäkologie)

ROR

<https://ror.org/05r0e4p82>

Funder(s)

Funder type

University/education

Funder Name

Karl Landsteiner Institute of Cell-Based Treatment in Gynecology (Karl Landsteiner Institut für zellorientierte Therapie in der Gynäkologie)

Results and Publications

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	01/12/2016		Yes	No