INPLASY PROTOCOL

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Corresponding author:
Bin Guo

treatment2021@163.com

Author Affiliation:
Shaanxi University of Chinese Medicine, Xianyang 712083, Shaanxi, China.

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None declared.

The efficacy and safety of letrozole or anastrozole in the treatment of specific male infertility patients: meta-analysis and systematic review

Guo, B[1]; Li, JJ[2]; Ma, YL[3]; Zhao, YT[4]; Liu, JG[5].

Review question / Objective: **1) Subjects: clinically diagnosed as a non-azospermia patients with male infertility, and T/E2 < 10. (T/E2, T: ng / dl; E2: pg / ml) (2) Intervention methods: randomized controlled and uncontrolled clinical trials. (3) Intervention measures: use LE or AZ to intervene. (4) Observation indicators: (i). Main outcome indicators: total sperm count, sperm concentration, sperm motility, sperm morphology, total functional sperm fraction (TFSF). (ii). Secondary outcome measures: serum follicle stimulating hormone (FSH), luteinizing hormone (LH), mate pregnancy rate, estrogen (E2), testosterone (T), and testosterone to estradiol ratio (T /E2). Total functional sperm fraction (TFSF): total functional sperm fraction is a comprehensive indicator of semen quantity and quality. The formula used is: total sperm count × percentage of rapid linear progressive movement × percentage of normal morphology ×10-4. This value can well and comprehensively reflect the normal fraction of sperm in terms of morphology and motility during ejaculation.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 September 2021 and was last updated on 20 September 2021 (registration number INPLASY202190062).

INTRODUCTION

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functional sperm fraction (TFSF): total functional sperm fraction is a comprehensive indicator of semen quantity and quality. The formula used is: total sperm count × percentage of rapid linear progressive movement × percentage of normal morphology ×10-4. This value can well and comprehensively reflect the normal fraction of sperm in terms of morphology and motility during ejaculation.

Condition being studied: Semen quality and sex hormone parameters.

METHODS

Participant or population: clinically diagnosed as a non-azospermia patients with male infertility, and T/E2 < 10. (T/E2, T: ng / dl; E2: pg / ml)

Intervention: Use LE or AZ to intervene.

Comparator: Results after treatment with LE or AZ compared with those before treatment and compared with other treatments.

Study designs to be included: Randomized controlled and uncontrolled clinical trials.

Eligibility criteria: Inclusion criteria include: (1) Subjects: clinically diagnosed as a non-azospermia patients with male infertility, and T/E2 < 10. (T/E2, T: ng / dl; E2: pg / ml) (2) Intervention methods: randomized controlled and uncontrolled clinical trials. (3) Intervention measures: use LE or AZ to intervene.(4) Observation indicators: (i). Main outcome indicators: total sperm count, sperm concentration, sperm motility, sperm morphology, total functional sperm fraction (TFSF). (ii). Secondary outcome measures: serum follicle stimulating hormone (FSH), luteinizing hormone (LH), mate pregnancy rate, estrogen (E2), testosterone (T), and testosterone to estradiol ratio (T /E2).

Information sources: Two independent researchers searched PubMed, EMBASE, Cochrane, CNKI, VIP, CBM and WanFang Date respectively.

Main outcome(s): Observation indicators: (i). Main outcome indicators: total sperm count, sperm concentration, sperm motility, sperm morphology, total functional sperm fraction (TFSF). (ii). Secondary outcome measures: serum follicle stimulating hormone (FSH), luteinizing hormone (LH), mate pregnancy rate, estrogen (E2), testosterone (T), and testosterone to estradiol ratio (T /E2).

Quality assessment / Risk of bias analysis: First, we will use the Ottawa-Newcastle scale to assess the quality of all studies, involving the selection of study groups, comparability between groups, and determination of prognosis. The full score is 9. Studies with a score 7 low risk of bias. Subsequently, the Cochrane bias risk tool was used to evaluate the study quality of the RCTs. This assessment was based on six criteria.

Strategy of data synthesis: In data collection, we find that different research articles report some summary statistics in different forms. For continuous random variables, the most typical aggregate statistics are sample mean and sample standard deviation (M SD). For some reasons, some studies reported median, first and third quartiles (M, q25, q75) and / or maximum and minimum values. This leads to inconsistent aggregate statistics provided by different empirical studies, making it impossible to perform effective meta-analysis. If only studies that report sample mean and sample standard deviation are retained. This obviously lost a lot of useful information. Therefore, how to properly convert median, extreme or quartile to mean and standard deviation is very important. We use the online calculator compiled by Professor Tong Tie jun of Mathematics Department of Hong Kong Baptist University for data conversion. The conversion logic of the computer is based on the statistical research of J. Shi et al D. Luo et al and X. Wan et al。The specific links are as follows: http://www.math.hkbu.edu.hk/~tongt/papers/median2mean.html Meta-analysis was performed using RevMan 5.4

software. First, heterogeneity tests were carried out among studies. If there was no heterogeneity (I2 < 50%, P > 0.1), the fixed effect model was used for analysis; otherwise, the random effect model was used for analysis. For each outcome, the mean difference (MD) or the standard mean difference (SMD) with the 95% confidential interval (CI) was calculated. Sensitivity analysis and publication bias detection were conducted for the indicators with a large number of included studies.

Subgroup analysis: **In the analysis of semen concentration, subgroups were divided into severe oligozoospermia, moderate oligozoospermia, mild oligozoospermia and normal concentration.**

Sensitivity analysis: **Sensitivity analysis was performed by one - by - one elimination method.**

Country(ies) involved: **China.**

Keywords: **Aromatase inhibitors, letrozole, anastrozole, male infertility, meta-analysis.**

Contributions of each author:
Author 1 - Bin Guo.
Author 2 - Jiao-jiao Li.
Author 3 - Ya-ling Ma.
Author 4 - Yu-tao Zhao.
Author 5 - Jian-guo Liu.