

Clinical Trial Protocol

Iranian Registry of Clinical Trials

17 Sep 2026

The Evaluation of the Effect of N-acetylcysteine Combined With Therapeutic Effect of Naloxone in Improving Methadone Poisoning

Protocol summary

Study aim

Determining the effect of N-acetylcysteine combined with the therapeutic effect of Naloxone in improving methadone poisoning

Design

Clinical trial with control and intervention groups, with parallel group, not blind, non-random assignment to intervention and control group, phase 3 on 64 patients

Settings and conduct

Clinical and therapeutic studies are performed on methadone poisoned patients who went to Ayatollah Kashani hospital in Shahrekord, so that after obtaining their written consent, they were included in the study and divided into two groups of control and intervention non-randomly (Even days in the control group and odd days in the intervention group). The control group is treated with naloxone the intervention group is treated with Naloxone and N-acetylcysteine. Blood samples are taken from the patients, 5 days before and after intervening, and the variables are measured and finally all are compared in the two groups of control and intervention to determine the effect of N-acetylcysteine. Participants and the main researcher, health care personnel, those who evaluate the outcome are aware of the allocation of study groups.

Participants/Inclusion and exclusion criteria

Admission conditions: All patients who have a triad of opioid poisoning, including: loss of consciousness, hypoxia and Myotic pupil and have a positive methadone level in urinalysis. Exclusion criteria: patient dissatisfaction and Subjects who use supplements and drugs with similar effects or interfering with Naloxone and N-acetylcysteine

Intervention groups

The control group is treated with Naloxone and the intervention group is treated with Naloxone and N-acetylcysteine

Main outcome variables

AST; ALT; BUN; Creatinine; Uric acid; Malondialdehyde; LDH; Serum Antioxidant capacity

level; Blood pressure; Temperature; Heart rate; Respiratory rate; Creatinine

Phosphokinase; Sodium; Potassium; PH; PO₂; PCO₂; HCO₃

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20210222050462N1**

Registration date: **2022-01-13, 1400/10/23**

Registration timing: **retrospective**

Last update: **2022-01-13, 1400/10/23**

Update count: **0**

Registration date

2022-01-13, 1400/10/23

Registrant information

Name

Zahra karimi

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 38 3334 4610

Email address

drzahrakarimi@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2021-05-20, 1400/02/30

Expected recruitment end date

2021-12-21, 1400/09/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date
empty

Scientific title
The Evaluation of the Effect of N-acetylcysteine Combined With Therapeutic Effect of Naloxone in Improving Methadone Poisoning

Public title
The Evaluation of the Effect of N-acetylcysteine in Improving Methadone Poisoning

Purpose
Treatment

Inclusion/Exclusion criteria
Inclusion criteria:
All patients who have a triad of opioid poisoning, including: loss of consciousness, hypoxia and Myotic pupil Have a positive methadone level in urinalysis (UA)
Exclusion criteria:
Patient dissatisfaction Subjects who use supplements and drugs with similar effects or interfering with Naloxone and N-acetylcysteine

Age
No age limit

Gender
Both

Phase
3

Groups that have been masked
No information

Sample size
Target sample size: **64**

Randomization (investigator's opinion)
Not randomized

Randomization description

Blinding (investigator's opinion)
Not blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics committee of Shahrekord university of medical sciences
Street address
Parastar Ave ;Ayatollah Kashani Hospital
City
Shahrekord
Province

Chahar-Mahal-va-Bakhtiari
Postal code
8814835465
Approval date
2021-02-09, 1399/11/21
Ethics committee reference number
IR.SKUMS.REC.1399.244

Health conditions studied

1

Description of health condition studied
Poisoning by Methadone
ICD-10 code
T40.3X4
ICD-10 code description
Poisoning by Methadone, undetermined

Primary outcomes

1

Description
Serum levels of Aspartate aminotransferase enzyme
Timepoint
Measurement of the variable before intervening and 5 days after beginning the treatment with N-acetylcysteine
Method of measurement
Measured by Pars Azmoun commercial kitson on blood serum with an autoanalyzer system (BT3000, Italy)

2

Description
Serum levels of Alanine transaminase
Timepoint
Measurement of the variable before intervening and 5 days after beginning the treatment with N-acetylcysteine
Method of measurement
By Pars Azmoun commercial kits Measured on blood serum with an autoanalyzer system (BT3000, Italy)

3

Description
Serum levels of Blood urea Nitrogen
Timepoint
Measurement of the variable before intervening and 5 days after beginning of treatment with N-acetylcysteine
Method of measurement
Measured by Pars Azmoun commercial kits on blood serum with an autoanalyzer system(BT3000, Italy)

4

Description
Serum levels of Creatinine
Timepoint
Measurement of the variable before tntervening and 5 days after beginning of treatment with N-acetylcysteine
Method of measurement

Measured by Pars Azmoun commercial kits on blood serum with an autoanalyzer system (BT3000, Italy)

5

Description

Serum levels of Uric acid

Timepoint

Measurement of the variable before the intervening and 5 days after beginning treatment with N-acetylcysteine

Method of measurement

By Pars Azmoun commercial kits Measured on blood serum with an autoanalyzer system(BT3000, Italy)

6

Description

Serum levels of Malondialdehyde

Timepoint

Measurement of the variable before the intervention and 5 days after the beginning treatment with N-acetylcysteine

Method of measurement

To 50 µl of serum, 50 µl of 0.05% solution of BHT (Butylated hydroxytoluene) in 0.95% ethanol, 400 µl of 0.44 mM phosphoric acid and 100 µl of 42 mM thiobarbituric acid solution (TBA) is added for 1 hour. The temperature is incubated at 100 ° C and then the samples are placed on ice for 5 minutes and then the absorptions are read with a spectrophotometer.

7

Description

Serum levels of Lactate dehydrogenase

Timepoint

Measurement of the variable before intervening and 5 days after beginning of treatment with N-acetylcysteine

Method of measurement

By Pars Azmoun commercial kits Measured on blood serum with an autoanalyzer (BT3000, Italy)

8

Description

Serum levels of ferric reducing ability of plasma(FRAP)

Timepoint

Measurement of the variable before intervening and 5 days after beginning of treatment with N-acetylcysteine

Method of measurement

In the FRAP method, triazine reagent is added to the serum sample and the resulting mixture is incubated for 10 minutes at 37 ° C. Then the absorbance of the solution is measured at a wavelength of 593 nm by a spectrophotometer.

9

Description

Blood pressure

Timepoint

Measurement of the variable before intervening and 5 days after beginning of treatment with N-acetylcysteine

Method of measurement

Mercury sphygmomanometer

10

Description

Heart rate

Timepoint

Measurement of the variable before intervening and 5 days after beginning of treatment with N-acetylcysteine

Method of measurement

Pulse oximeter

11

Description

respiratory rate

Timepoint

Measurement of the variable before intervening and 5 days after beginning of treatment with N-acetylcysteine

Method of measurement

Count the number of breaths by observing the movements of the chest

12

Description

Body Temperature

Timepoint

Measurement of the variable before the intervening and 5 days after beginning of treatment with N-acetylcysteine

Method of measurement

Mercury Thermometer

13

Description

Serum levels of Creatine phosphokinase

Timepoint

Measurement of the variable before intervening and 5 days after beginning of treatment with N-acetylcysteine

Method of measurement

By Pars Azmoun commercial kits Measured on blood serum with an autoanalyzer (BT3000, Italy)

14

Description

Serum levels of sodium

Timepoint

Measurement of the variable before intervening and 5 days after beginning of treatment with N-acetylcysteine

Method of measurement

By Pars Azmoun commercial kits Measured on blood serum with an autoanalyzer (BT3000, Italy)

15

Description

Serum levels of potassium

Timepoint

Measurement of the variable before intervening and 5

days after beginning of treatment with N-acetylcysteine

Method of measurement

By Pars Azmoun commercial kits Measured on blood serum with an autoanalyzer (BT3000, Italy)

16

Description

Venous blood pH

Timepoint

Measurement of the variable before the intervening and 5 days after beginning of treatment with N-acetylcysteine

Method of measurement

Blood gas analyzer

17

Description

Venous blood levels of Partial oxygen pressure (PO₂)

Timepoint

Measurement of the variable before intervening and 5 days after beginning of treatment with N-acetylcysteine

Method of measurement

Blood gas analyzer

18

Description

Venous blood levels of Partial pressure of carbon dioxide (PCO₂)

Timepoint

Measurement of the variable before intervening and 5 days after beginning of treatment with N-acetylcysteine

Method of measurement

Blood gas analyzer

19

Description

Venous blood levels of Bicarbonate ion (HCO_3^-)

Timepoint

Measurement of the variable before intervening and 5 days after beginning of treatment with N-acetylcysteine

Method of measurement

Blood gas analyzer

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: In this group, treatment performed by using Naloxone and N-acetylcysteine. N-acetylcysteine is applied in therapeutic doses which used in acetaminophen poisoning, with the initial injection dose of N-acetylcysteine being infused at 150 mg / kg in 200 cc of 5% dextrose within 1 hour, followed by 50 mg / kg immediately is infused in 500 cc of 5% dextrose for 4

hours and immediately after that 100 mg / Kg in one liter of 5% dextrose is infused for 16 hours. Therapeutic intervention with 0.4 mg injectable dose of naloxone in non-addicts and 0.05 mg in addicts is administered every 5 minutes until the patient's concentration reaches above 93% and then the maintenance dose with 2.3 doses of wake up (dose that the patient with It wakes up or the patient's respiratory depression resolves) starts per hour for the patient and lasts up to 24 hours, and then we start taper naloxone so that every 6 hours we halve the dose of naloxone received by the patient to zero and eventually 5 days after beginning of treatment, blood samples are taken from patients again. Finally, all variables are compared separately in two groups of case and control to determine the effect of N-acetylcysteine.

Category

Treatment - Drugs

2

Description

Control group: In the control group, treatment performed just by Naloxone. Intervention therapy with 0.4 mg injectable dose of naloxone in non-addicts and 0.05 mg in addicts is administered every 5 minutes until the patient's concentration reaches above 93% and then the maintenance dose It starts with 2/3 dose of wake up (the dose that the patient wakes up with or the patient's respiratory depression goes away) per hour for the patient and continues for 24 hours and then we start taper naloxone so that every 6 hours the dose We halve the naloxone intake of the patient to zero and finally, after 5 days from the start of treatment, Blood samples are taken from the patient again. Finally, all variables are compared separately in case and control groups to determine the effect of N-acetylcysteine.

Category

Treatment - Drugs

Recruitment centers

1

Recruitment center

Name of recruitment center

Ayatollah Kashani Hospital in Shahrekord

Full name of responsible person

Pante A Ramezannezhad

Street address

Parastar Ave ;Ayatollah Kashani Hospital

City

Shahrekord

Province

Chahar-Mahal-va-Bakhtiari

Postal code

5891588167

Phone

+98 38 3226 4841

Email

drzahrakarimi@gmail.com

Web page address

<http://kashanihp.skums.ac.ir/>

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Shahre-kord University of Medical Sciences

Full name of responsible person

Mehraban Sadeghi

Street address

Kashani Ave; Shahrekord university of medical sciences

City

Shahrekord

Province

Chahar-Mahal-va-Bakhtiari

Postal code

8815713471

Phone

+98 38 3333 2907

Email

drzahrakarimi@gmail.com

Grant name**Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

Yes

Title of funding source

Shahre-kord University of Medical Sciences

Proportion provided by this source

100

Public or private sector

Public

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin**Type of organization providing the funding**

Academic

Person responsible for general inquiries

Contact**Name of organization / entity**

Shahre-kord University of Medical Sciences

Full name of responsible person

Pante A Ramezannezhad

Position

Assistant Professor

Latest degree

Specialist

Other areas of specialty/work

Forensic Medicine

Street address

Parastar Ave ;Ayatollah Kashani Hospital

City

Shahrekord

Province

Chahar-Mahal-va-Bakhtiari

Postal code

8816758915

Phone

0098 38 32264825-41

Fax

+98 38 3222 8600

Email

ramezannezhad.p@skums.ac.ir

Person responsible for scientific inquiries

Contact**Name of organization / entity**

Shahre-kord University of Medical Sciences

Full name of responsible person

Pante A ramezannezhad

Position

Assistant Professor

Latest degree

Specialist

Other areas of specialty/work

Forensic Medicine

Street address

Kashani hospital;Parastar avenue

City

Shahrekord

Province

Chahar-Mahal-va-Bakhtiari

Postal code

8816758915

Phone

0098 38 32264825-41

Email

ramezannezhad.p@skums.ac.ir

Person responsible for updating data

Contact**Name of organization / entity**

Shahre-kord University of Medical Sciences

Full name of responsible person

Pante A Ramezannezhad

Position

Assistant Professor

Latest degree

Specialist

Other areas of specialty/work

Forensic Medicine

Street address

Parastar Ave ;Ayatollah Kashani Hospital

City

Shahrekord

Province

Chahar-Mahal-va-Bakhtiari

Postal code

8816758915

Phone

0098 38 32264825-41

Email

ramezannezhad.p@skums.ac.ir

Sharing plan

Deidentified Individual Participant Data Set (IPD)

Undecided - It is not yet known if there will be a plan to make this available

Study Protocol

Undecided - It is not yet known if there will be a plan to make this available

Statistical Analysis Plan

Undecided - It is not yet known if there will be a plan to make this available

Informed Consent Form

Undecided - It is not yet known if there will be a plan to make this available

Clinical Study Report

Undecided - It is not yet known if there will be a plan to make this available

Analytic Code

Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary

Undecided - It is not yet known if there will be a plan to make this available