

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

Comparison of the effect of Serratus anterior plain block technique with intercostal nerve block technique in reducing pain following multiple rib fractures in emergency department

Protocol summary

Study aim

Comparison of the effect of Serratus anterior plain block technique with intercostal nerve block technique in reducing pain following multiple rib fractures in emergency department

Design

Two arm parallel groups randomized clinical trial with single blinded post interventional care and outcome assessment

Settings and conduct

In the test group, patients will undergo regional anesthesia using serratus anterior plane block technique. In the control group, the intercostal nerve block technique is performed. The study will be single-blinded, and the registrants before and after the intervention are unaware of the patient grouping. Improvement of certain symptoms provided in a modified qor-40 checklist and visual analogue score will be recorded

Participants/Inclusion and exclusion criteria

Study subjects include patients who refer to Imam Reza and Ayatollah Taleghani hospitals in Kermanshah, with blunt thoracic trauma during 2019, three or more traumatic rib fractures, aged 18 years or more, Initial consent Visual analogue score of 4 and more Initial systolic blood pressure of 90 mmHg and more and patients admitted and monitored at least twelve hours after interventions Patients with opium addiction, pathologic and/or non-traumatic rib fractures, bilateral rib fractures, history of local anesthetic sensitivity, pregnant and/or lactating and those suffering from mental or psychological problems will not be included. Patients who progress toward tension pneumothorax and whom need intubation and mechanical ventilation will be excluded

Intervention groups

Patients referred to Imam Reza and Ayatollah Taleghani hospitals in Kermanshah, during 2019 with traumatic

three and/or more rib fractures who will undergo regional anesthesia by Serratus anterior plane block technique

Main outcome variables

Visual analogue scale & Modified qor-40 SCORE changes

General information

Reason for update

Information for termination of sampling have been entered - The realized date of commencement and termination of sampling is also different from the expected dates which are entered in the relevant columns.

Acronym

IRCT registration information

IRCT registration number: **IRCT20190314043050N1**

Registration date: **2019-05-27, 1398/03/06**

Registration timing: **prospective**

Last update: **2019-12-22, 1398/10/01**

Update count: **1**

Registration date

2019-05-27, 1398/03/06

Registrant information

Name

Amirhossein Meysami

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 83 3427 6301

Email address

ah_meysami@kums.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2019-04-25, 1398/02/05

Expected recruitment end date

2019-05-26, 1398/03/05

Actual recruitment start date

2019-05-28, 1398/03/07

Actual recruitment end date

2019-08-23, 1398/06/01

Trial completion date

2019-09-23, 1398/07/01

Scientific title

Comparison of the effect of Serratus anterior plain block technique with intercostal nerve block technique in reducing pain following multiple rib fractures in emergency department

Public title

Serratus anterior plane block technique in multiple traumatic rib fractures

Purpose

Treatment

Inclusion/Exclusion criteria**Inclusion criteria:**

Patients referred to Imam Reza and Ayatollah Taleghani hospital in Kermanshah, with a complaint of blunt thoracic trauma during 2019 Visual analogue scale of four and more Initial systolic blood pressure of 90 mmHg and more Three-rib fractures and more The patient should be monitored at least twelve hours after interventions

Exclusion criteria:

Opium addicted patients Pathologic and/or Nontraumatic rib fractures Bilateral rib fractures history of allergy to local anesthetics Pregnancy and/or breastfeeding People with mental and psychological problems who are not able to answer questions Tension pneumothorax occurs Need to intubation and mechanical ventilation Patient dissatisfaction

Age

From **18 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Outcome assessor

Sample size

Target sample size: **40**

Actual sample size reached: **40**

Randomization (investigator's opinion)

Randomized

Randomization description

Patients are randomly divided into control and test groups by the complete randomization method

Blinding (investigator's opinion)

Single blinded

Blinding description

after completing interventions, patients' evaluation checklist will be decoded. Assessment and registration is carried out by a specific person for each patient. These

evaluators are blind to the type of the procedure performed in the recovery room. In fact, Patient information is recorded before and after the process by the assistant who is unaware of the him/her study grouping.

Placebo

Not used

Assignment

Other

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

Ethics committee of Kermanshah university of medical sciences

Street address

Parastar blvd, Imam Reza hospital

City

Kermanshah

Province

Kermanshah

Postal code

6714415333

Approval date

2019-04-24, 1398/02/04

Ethics committee reference number

IR.KUMS.REC.1398.065

Health conditions studied**1****Description of health condition studied**

Multiple traumatic rib fractures

ICD-10 code

S22

ICD-10 code description

Fracture of rib(s), sternum and thoracic spine

Primary outcomes**1****Description**

score changes in visual analogue scale system

Timepoint

Immediately after the intervention, the first 30 minutes, one, six, and 12 hours after

Method of measurement

Visual analogue scale and modified Qor-40 score checklist

Secondary outcomes

1

Description

Dosage of Fentanyl used

Timepoint

thirty minutes to twelve hours after intervention

Method of measurement

Microgram per Kg

Intervention groups

1

Description

Intervention group: serratus anterior plane block technique under ultrasound guidance. This method is similar to the pectoralis nerve and trans-abdominal plane blocks and, due to the special anatomy of the Sarratus muscle, it traverses a wide area of the chest wall.

Patients in the intervention group will be in a supine position with the hands placed above the head. After providing sterile conditions, local anesthetic technique begins. An ultrasound linear probe of 3 to 16 MHz is placed in the middle axillary line at the fifth rib. A Touhy's 18G needle is placed between the anterior serratus and the external intercostal muscles. After negative aspiration and confirmation of needle location by initial hydro-dissection with 2 to 3 ml of solution, 20 ml of Ropivacaine hydrochloride will be injected 5 mg / ml in the cephalad-caudal direction on the plate.

Category

Treatment - Other

2

Description

Control group: intercostal nerve block. This procedure is done between the posterior and middle axillary lines. A 10-ml syringe with a needle of 3.375 and 25 gauge is used. The skin of the affected area will be prepared by the usual aseptic method. To perform this technique, the second finger of the non-dominant hand draws the lower edge of the rib upwards. The needle at an angle of 80 degrees to the chest wall, enters the skin to slowly hit the lower edge of the rib. At this time, the finger is removed and the needle is pulled in the intercostal space. We dip the needle 3 millimeter and aspirate. Then, 2 to 4 ml of ropivacaine hydrochloride will be given at a dose of 5 mg / ml to a maximum dose of 2.5 mg per kg body weight. The procedure is repeated in two gears up and down the premises.

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Ayatollah Taleghani Hospital

Full name of responsible person

Bahareh baghchi

Street address

Taq_e_bostan Blvd

City

Kermanshah

Province

Kermanshah

Postal code

6715847167

Phone

+98 83 3836 7991

Fax

Email

taleghani_hospital@yhoo.com

Web page address

<http://taleghani.kums.ac.ir/>

2

Recruitment center

Name of recruitment center

Imam Reza Hospital

Full name of responsible person

Ali Soroush

Street address

Parastar Blvd

City

Kermanshah

Province

Kermanshah

Postal code

6678987654

Phone

+98 83 3427 6301

Email

admin@irhk.ir

Web page address

<http://www.irhk.ir/>

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Kermanshah University of Medical Sciences

Full name of responsible person

Mahmoud Reza Moradi

Street address

Shahid Beheshti Blvd

City

Kermanshah

Province

Kermanshah

Postal code

6715847141

Phone

+98 83 3835 8258

Email

Daftarriasat@kums.ac.ir

Web page address

https://www.kums.ac.ir

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

Yes

Title of funding source

Kermanshah 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**

Kermanshah University of Medical Sciences

Full name of responsible person

Amirhossein Meysami

Position

Assistant professor

Latest degree

Specialist

Other areas of specialty/work

Emergency Medicine

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Phone

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Fax**Email**

ah_meysami@kums.ac.ir

Person responsible for scientific inquiries**Contact****Name of organization / entity**

Kermanshah University of Medical Sciences

Full name of responsible person

Amirhossein Meysami

Position

Assistant professor

Latest degree

Specialist

Other areas of specialty/work

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Person responsible for updating data**Contact****Name of organization / entity**

Kermanshah University of Medical Sciences

Full name of responsible person

Amirhossein Meysami

Position

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Latest degree

Specialist

Other areas of specialty/work

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Postal code

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Phone

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Fax**Email**

ah_meysami@kums.ac.ir

Sharing plan**Deidentified Individual Participant Data Set (IPD)**

Yes - There is a plan to make this available

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

Yes - There is a plan to make this available

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

Yes - There is a plan to make this available

Analytic Code

No - There is not a plan to make this available

Data Dictionary

No - There is not a plan to make this available

Title and more details about the data/document

The whole potential data can be shared after identifying individuals and their information

When the data will become available and for how long

Since 1399

To whom data/document is available

Researchers working in academic institutions

Under which criteria data/document could be used

-

From where data/document is obtainable

Ah_meysami@kums.ac.ir

What processes are involved for a request to access data/document

After contacting the designer email

Ah_meysami@kums.ac.ir

Comments