Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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 addmited 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 plate 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 guage 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
Street address
Parastar Blvd, Imam Reza hospital
City
Kermanshah
Province
Kermanshah
Postal code
6715847141
Phone
+98 83 3427 6301
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
Emergency Medicine
Street address
Parastar Blvd, Imam Reza hospital
City
Kermanshah
Province
Kermanshah
Postal code
6715847141
Phone
+98 83 3427 6301
Fax
Email
ah_meysami@kums.ac.ir

Person responsible for updating data

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
Street address
Parastar Blvd, Imam Reza hospital
City
Kermanshah
Province
Kermanshah
Postal code
6715847141
Phone
+98 83 3427 6301
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