Clinical Trial Protocol
Iranian Registry of Clinical Trials

18 Sep 2026

comparison of fractional CO2 laser versus pulsed dye laser in the treatment of hypertrophic scars

Protocol summary

Summary

(1) Objectives: The aim of this study was to compare CO2 Fractional Laser and pulsed dye laser (PDL) methods in the treatment of hypertrophic scar. (2) Design: This is a double-blind clinical trial. (3) Procedure: Statistical population included patients visiting the skin clinic and clinically diagnosed with hypertrophic scar. (4) Inclusion and exclusion criteria: Patients with hypertrophic scar who were not undergoing any other treatment at the same time, and had no history of taking isotretinoin and pregnancy in the past six months were included in the study. (5) Interventions: The scars were split into two halves. Then, one half of each scar was randomly selected for laser therapy with CO2 fractional laser (CO2FL), and the second half received pulsed dye laser therapy (PDL). The therapeutic sessions were held every 4 weeks. (6) The main outcome variables: Improvement of scars was studied using three different evaluation methods. First, the degrees of pigmentation, flexibility, height, and vascularity of lesions were measured based on the Vancouver scar scale before the treatment and at each visit up to 4 sessions. Second, the treatment results were assessed by comparing clinical photographs before and after the treatment, using a 4-point grading scale. Third, patients were asked to rate their personal satisfaction of the treatment on a 4-point grading scale at the end of each session. Finally, the effects of these two laser therapies were compared, using the aforementioned scales.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2016022326730N1**
Registration date: **2016-04-08, 1395/01/20**
Registration timing: **retrospective**
Last update:
Update count: **0**

Registration date

2016-04-08, 1395/01/20

Registrant information

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Name of organization / entity
Ahvaz Jundishapur University of Medical Scienses
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Iran (Islamic Republic of)
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Recruitment status

Recruitment complete

Funding source

The cost of the project will be provided by private

Expected recruitment start date

2015-08-23, 1394/06/01

Expected recruitment end date

2016-03-19, 1394/12/29

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

comparison of fractional CO2 laser versus pulsed dye laser in the treatment of hypertrophic scars

Public title

comparison of fractional CO2 laser versus pulsed dye laser in the treatment of hypertrophic scars

Purpose

Treatment

Inclusion/Exclusion criteria
Inclusion criteria: Patients with hypertrophic scars
Exclusion criteria: Receiving any topical injection or systemic treatment for lesion concurrent with study; Taking isotretinoin within last 6 months; Patients with photosensitivity ; Pregnancy.
Age
No age limit
Gender
Male

Phase
2
Groups that have been masked
No information
Sample size
Target sample size: **35**
Randomization (investigator's opinion)
Not randomized
Randomization description
Blinding (investigator's opinion)
Double 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 the Ahvaz Jundishapur University of Medical Scienses
Street address
Ethics Committee of the Ahvaz Jundishapur University of Medical Sciensees, University town, Golestan, Ahvaz, Khoozestan
City
Ahvaz
Postal code
Approval date
2015-09-23, 1394/07/01
Ethics committee reference number
IR.AJUMS.REC.1394.414

Health conditions studied

1

Description of health condition studied
hypertrophic scar
ICD-10 code
L91.0
ICD-10 code description
hypertrophic scar

Primary outcomes

1

Description
Hypertrophic scar improvement
Timepoint
Before intervention, Before each session of intervention,1 month after the last session
Method of measurement
Vancouver Scar Scale, Physician evaluation form, Patient satisfaction form

Secondary outcomes

1

Description
Pigmentary chanege in place
Timepoint
Before each session of intervention,1 month after the last session
Method of measurement
Observation

Intervention groups

1

Description
Intervention2: Fractional CO2 Laser 50 mj every 4 weeks for 4 sessions
Category
Treatment - Devices

2

Description
Intervention 1: PDL 585 nm laser every 4 weeks for 4 sessions
Category
Treatment - Devices

Recruitment centers

1

Recruitment center
Name of recruitment center
Doctor Radmanesh Skin care Clinick
Full name of responsible person
Samira Mehramiri
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Four East Streat, Kianpars, Ahvaz, Khoozestan
City
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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Vice chancellor for research, Ahvaz Jundishapur University of Medical Sciences

Full name of responsible person

Nader Saki

Street address

Research Center, Ahvaz Jundishapur University of Medical Science, University town, Golestan, Ahvaz, Khoozestan

City

Ahvaz

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding source

Vice chancellor for research, Ahvaz Jundishapur University of Medical Sciences

Proportion provided by this source

100

Public or private sector

empty

Domestic or foreign origin

empty

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

empty

Person responsible for general inquiries

Contact

Name of organization / entity

Ahvaz Jundishapur University of Medical Scienses

Full name of responsible person

Seyed Mohamad Radmanesh

Position

Assistant Professor

Other areas of specialty/work

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

empty

Study Protocol

empty

Statistical Analysis Plan

empty

Informed Consent Form

empty

Clinical Study Report

empty

Analytic Code

empty

Data Dictionary

empty