Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

Comparison of Neck Extension Versus Ultrasound Guided Distance Measured from Skin to Epiglottis (DSE) as Sole Predictors of Difficult Intubation

Protocol summary

Study aim

The objective of this study is to compare the conventional measurement of neck extension versus ultrasound guided distance measured from skin to epiglottis (DSE) as sole predictors in determining difficult airway and laryngoscopy.

Design

150 patients (minimum sample size 139 as per WHO calculator) were included in the study as per the inclusion criteria furnished . The method of sampling was non-probability consecutive via lottery method.

Settings and conduct

Maximum angle for neck extension in was measured with the patient sitting while keeping the head erect with mouth wide open and then asked to extend the head maximally while the anesthetist measured the angle traversed by the occlusal surface of the upper teeth. . In Group E, linear probe using ultrasound guidance was used to measure the distance from skin to epiglottis in the sniffing position with the patient lying supine . To remove bias, the anesthetist performing pre-operative airway assessment were different to those confirming through Cormack Lehane scoring.

Participants/Inclusion and exclusion criteria

Inclusion criteria included all ASA I and II patients aged 20-40 years presenting to the anesthesia department after pre-anesthesia assessment for subsequent elective surgeries under general anesthesia Exclusion criteria excluded patients with patients with a history of burns or trauma to the airways, patient with a history of tracheostomy or lower airway surgeries and patients unwilling to be included in the study.

Intervention groups

All the patients included in the study were divided into two groups, Group N, undergoing neck extension as sole predictor and Group E, using DSE by USG as a sole predictor for difficulty airway.

Main outcome variables

Comparison of sensitivity and specificity showed a sensitivity of 76.9% in Group N versus 88.4% in Group E (DSE). Specificity showed 69.4% in Group N versus 87.5% in Group E.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20230809059095N2**
Registration date: **2023-09-12, 1402/06/21**
Registration timing: **retrospective**

Last update: **2023-09-12, 1402/06/21**
Update count: **0**

Registration date

2023-09-12, 1402/06/21

Registrant information

Name

Hassan Minhas

Name of organization / entity

Combined Military Hospital, Rawalpindi, Pakistan

Country

Pakistan

Phone

+92 345 5264734

Email address

h.hassan.nasir@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2022-01-01, 1400/10/11

Expected recruitment end date

2022-06-30, 1401/04/09

Actual recruitment start date
2022-01-01, 1400/10/11

Actual recruitment end date
2022-06-30, 1401/04/09

Trial completion date
2022-06-30, 1401/04/09

Scientific title
Comparison of Neck Extension Versus Ultrasound Guided Distance Measured from Skin to Epiglottis (DSE) as Sole Predictors of Difficult Intubation

Public title
Sole Predictors of Difficult Intubation - Neck Extension Vs DSE

Purpose
Screening

Inclusion/Exclusion criteria

Inclusion criteria:
ASA I and II patients aged 20-40 yrs Elective Surgery Surgery under General Anesthesia

Exclusion criteria:
History of Burns and Trauma to airway Tracheostomy Previous lower airway surgery Unwilling

Age
From **20 years** old to **40 years** old

Gender
Both

Phase
N/A

Groups that have been masked

- Participant
- Investigator
- Outcome assessor

Sample size
Target sample size: **139**
Actual sample size reached: **150**

Randomization (investigator's opinion)
Randomized

Randomization description
The method of sampling was non-probability consecutive via lottery method.

Blinding (investigator's opinion)
Double blinded

Blinding description
To remove bias, the anesthetist performing pre-operative airway assessment were different to those confirming through Cormack Lehane scoring during intubation

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Ethics Committee of Combined Military Hospital, Rawalpindi, Pakistan

Street address
CMH Road

City
Rawalpindi

Postal code
46000

Approval date
2021-12-15, 1400/09/24

Ethics committee reference number
431/12/21

Health conditions studied

1

Description of health condition studied
Screening for Difficult Intubation

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description
ultrasound guided distance measured from skin to epiglottisis is superior to conventional neck extension when used as sole agents to diagnose difficult airwayin suspected patients.

Timepoint
On intubation

Method of measurement
Visibility on laryngoscopy

Secondary outcomes

empty

Intervention groups

1

Description
Comparison group 1: undergoing neck extension as sole predictor

Category
Early detection

2

Description
Comparison group 2: using DSE by USG as a sole predictor for difficulty airway

Category

Early detection

Recruitment centers

1

Recruitment center

Name of recruitment center
Combined Military Hospital
Full name of responsible person
Hassan Nasir Minhas
Street address
CMH Road
City
Rawalpindi
Postal code
46000
Phone
+92 51 9270163
Email
h.hassan.nasir@gmail.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Armed Forces Post Graduate Medical Institute
Full name of responsible person
Hassan Nasir Minhas
Street address
CMH Road
City
Rawalpindi
Postal code
46000
Phone
+92 345 5264734
Email
h.hassan.nasir@gmail.com

Grant name

Grant code / Reference number

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

Title of funding source
Armed Forces Post Graduate Medical Institute

Proportion provided by this source
100

Public or private sector
Private

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
Armed Forces Post Graduate Medical Institute
Full name of responsible person
HassanNasir Minhas
Position
Registrar
Latest degree
Medical doctor
Other areas of specialty/work
Anesthesiology
Street address
CMH Road
City
Rawalpindi
Province
Punjab
Postal code
46000
Phone
+92 345 5264734
Email
h.hassan.nasir@gmail.com

Person responsible for scientific inquiries

Contact

Name of organization / entity
Armed Forces Post Graduate Medical Institute
Full name of responsible person
Hassan Nasir Minhas
Position
Registrar
Latest degree
Medical doctor
Other areas of specialty/work
Anesthesiology
Street address
CMH Road
City
Rawalpindi
Province
Punjab
Postal code
46000
Phone
+92 345 5264734
Email
h.hassan.nasir@gmail.com

Person responsible for updating data

Contact

Name of organization / entity
Armed Forces Post Graduate Medical Institute
Full name of responsible person
Hassan Nasir Minhas
Position
Registrar

Latest degree
Medical doctor
Other areas of specialty/work
Anesthesiology
Street address
CMH Road
City
Rawalpindi
Province
Punjab
Postal code
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Phone
+92 345 5264734
Email
h.hassan.nasir@gmail.com

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