Novel Measurement Methodology for Diaphragm Ultrasound

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Diaphragm excursion measured from the PLAPS point is more feasible than from the subcostal view and yields comparable results of excursion

Ethische beoordeling	Positief advies
Status	Werving gestart
Type aandoening	-
Onderzoekstype	Observationeel onderzoek, zonder invasieve metingen

Samenvatting

ID

NL-OMON23936

Bron
NTR

Verkorte titel
NOVUS

Aandoening

Diaphragm dysfunction

Ondersteuning

Primaire sponsor: none
Overige ondersteuning: none

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

Feasibility expressed as image obtained yes/no, diaphragm excursion in millimetres measured from the PLAPS and subcostal view, ICC for excursion measured from both points

Toelichting onderzoek

Achtergrond van het onderzoek

Ultrasound has become a widely used tool on the Intensive Care Unit over the last decade. It's areas for application have since then expanded now also including imaging of the diaphragm and other respiratory muscles to for example, detect patient ventilator asynchrony, quantify its function and predict the outcome of extubation. However, the standard view for detecting diaphragm excursion (subcostal view) is often blocked by air in the stomach and/or intestines. For this reason, an alternative method to visualise excursion would be of interest. In this regard, the PLAPS-point (posters lateral alveolar and pleural syndrome point) presents itself as feasible alternative, given that the liver and spleen serve as acoustic windows to visualise the diaphragm and that it is already a standard point of evaluation for pulmonary pathology. We hypothesise that measurements from the PLAPS will be more feasible than from the subcostal view and yield a good ICC (> 0.8).

Measurements:
Two ultrasound devices will be used simultaneously to directly compare measurements made in the different measurement sites (subcostal and PLAPS). The subcostal excursion will be recorded in M-mode on midclavicular line as closely aligned to the movement of the dome as possible. The excursion in the PLAPS will be recorded in B-mode at the site of maximal excursion.

In order to test various clinical situations, measurements will be done during quiet breathing, short nasal breathing (sniffing) and deep breathing. The measurements will be repeated on both sides of the body.

This results in a total of 288 images (12 participants x2 transducers x2 sides x3 breathing patterns)

Doel van het onderzoek

Diaphragm excursion measured from the PLAPS point is more feasible than from the subcostal view and yields comparable results of excursion

Onderzoeksopzet

Measurements will be performed using a Philips CX 50 machine and a Sonosite Edge II machine. Measurements will be taken once the volunteer is instructed and has performed the various breathing patterns.

Onderzoeksproduct en/of interventie

Ultrasound examination from the PLAPS and subcostal view

Contactpersonen

Publiek

Amsterdam UMC
Mark Haaksma

0648072416

Wetenschappelijk

Amsterdam UMC
Mark Haaksma

0648072416

Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

Healthy volunteers

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

Unable to complete full ultrasonographic exam

Onderzoeksopzet

Opzet

Type:	Observationeel onderzoek, zonder invasieve metingen
Onderzoeksmodel:	Anders
Toewijzing:	N.v.t. / één studie arm
Blindering:	Open / niet geblindeerd

Controle:	N.v.t. / onbekend

Deelname

Nederland

Status:	Werving gestart
(Verwachte) startdatum:	09-03-2021
Aantal proefpersonen:	12
Type:	Verwachte startdatum

Voornemen beschikbaar stellen Individuele Patiënten Data (IPD)

Wordt de data na het onderzoek gedeeld: Nee

Toelichting
Data will only be shared upon reasonable request by other researchers for research purposes only

Ethische beoordeling

Positief advies

Datum:	09-03-2021
Soort:	Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

Geen registraties gevonden.

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL9431

Register	ID
Ander register	METC VUmc : 2019.577

Resultaten