Press release

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Basic information

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Department of: Clinical medicine

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Title of dissertation: Excessive tracheal collapse as a cause of respiratory symptoms: Diagnostic challenges.

Date for defence: 25./1.-2019 at 2 pm Place: Aud. B, Aarhus Universitets Hospital, Skejby

Press release (Danish):

Ny viden om forekomst og udredning af sjælden lungesygdom.

Mange patienter kontakter deres praktiserende læge på grund af hoste. Hoste kan skyldes mange forskellige lidelser, men det er ikke altid nemt at finde årsagen. En af de mere sjældne er sammenklapning af luftrøret under udånding. Et nyt ph.d.-projekt fra Aarhus Universitet, Health giver vigtig viden om denne tilstand.

Diagnosen dynamisk luftvejskollaps stilles traditionelt vha. kikkert undersøgelse af lungerne. CT skanning vinder mere og mere indpas i udredning af lungesygdomme. Disse skanninger laves nu således, at der skannes både efter indånding og efter udånding. På disse skanninger bemærkede lægerne, at der var mange patienter med kollaps af luftrøret under udånding. Første del af projektet var derfor dedikeret til at klarlægge forekomsten af sygdommen i en gruppe af danske lungepatienter. Derudover at finde den bedste måde at analysere skanningsbillederne på mht. vurdering af kollapset samt betydning heraf for patientens symptomer og lungefunktion. Undersøgelserne viste, at tilstanden er hyppigere end antaget og at CT-skanning er en værdifuld ikke invasiv diagnostisk mulighed i udredningen af lufterørskollaps.

Efter disse analyser stod det klart, at skanningernes kvalitet var af stor betydning for vurderingen af graden af luftrørets kollaps. Derfor var næste skridt for forskerne at forsøge at forbedre eksisterende set-up og metode til udførelse af CT skanningerne. Man fandt, at med beskeden træning og instruktion af patienterne inden skanningerne kunne diagnostikken forbedres signifikant.

I Danmark er det meget få patienter, der bliver tilbudt operation for udtalt kollaps af luftrøret sammenlignet med f. ex. USA. I Danmark behandler man primært de lungesygdomme patienterne ofte lider af samtidig med kollapset af luftrøret, såsom KOL og astma. Derudover tilbydes de lungefysioterapi med PEP-fløjte eller C-PAP. I sidste del af projektet undersøgte forskerne, om effekten af denne behandling kunne demonstreres på CT skanningerne. Det kunne man, omend effekten var kortvarig og uden medfølgende forbedring af symptomerne og lungefunktionen. En ny måde at udføre selve CT skanningerne på blev ligeledes testet. Denne nye metode forbedrer diagnostikken af luftrørets dynamik under vejrtrækningen, når dette er det primære formål.

Resultaterne er sammenfattet i et nyt ph.d.-projekt fra Aarhus Universitet, Health. Projektet er gennemført af Mette Nygaard Christensen, der forsvarer det d. 25./1.-2019.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 25/1 kl. 14 i Auditorium B, Aarhus Universitetshospital, Palle Juul-Jensens Blvd. 99, Skejby. Titlen på projektet er ”Excessive tracheal collapse as a cause of respiratory symptoms: Diagnostic challenges”. Yderligere oplysninger: Ph.d.-studerende Mette Nygaard Christensen, e-mail: metnygch@rm.dk, tlf. +45 51845339.

Bedømmelsesudvalg:

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Press release (English):

New insight into prevalence and diagnostics of a rare lung disease.

Cough is a common reason for consulting the general practitioner. The causes of cough is multiple but not always evident. One of the more rare causes is collapse of the trachea during expiration. A new PhD project from Aarhus University, Faculty Health, provides new knowledge about this condition.

The gold standard for diagnosing dynamic airway collapse is bronchoscopy. CT scanning is performed increasingly in the diagnostics of pulmonary diseases. Today the CT scans are performed both after inspiration and after expiration. The radiologists and pulmonologists noticed a high number of patients with excessive tracheal collapse after expiration. Thus, the first part of the study was dedicated to determine the prevalence of the condition in a Danish cohort of patients with pulmonary complaints. Furthermore, to examine the way for image analysis regarding evaluation of the tracheal collapse and the correlation to symptoms and the pulmonary function tests. The prevalence was higher than expected and the CT scanning was a useful non-invasive diagnostic tool in the evaluation of tracheal collapse.
During these analyses, the importance of the quality of the images obtained through CT scanning was clear. This lead to an attempt to improve the existing set-up in the CT acquisition. Modest training prior to CT scanning and personal guidance during the CT acquisition lead to a significant improvement in the CT images and hence the diagnostics.

In Denmark, only a few patients are offered surgery for excessive tracheal collapse compared to for instance the USA. In Denmark, the treatment is primarily optimization of the pulmonary comorbidities often present in these patients, i.e. COPD and asthma. Pulmonary physiotherapy with a PEP- device or C-PAP is often provided. The last part of the study was examining the effect of this treatment. The effect of the PEP-device was visualized on the CT images. However, the effect was momentary and did not lead to an improvement in symptoms or pulmonary function tests. Finally, a new CT modality was tested and improved the evaluation of the dynamic airway collapse during expiration.

The project was carried out by Mette Nygaard Christensen, who is defending her dissertation on January 25. 2019.

The defence is public and takes place on 25/1- at 2 pm in Auditorium B, Aarhus University Hospital, Palle Juul-Jensens Blvd. 99, Skejby. The title of the project is “Excessive tracheal collapse as a cause of respiratory symptoms: Diagnostic challenges”.
For more information, please contact PhD student Mette Nygaard Christensen, email: metnygch@rm.dk, Phone +45 51845339.

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