

Press release

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Basic information

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Department of: Clinical Medicine

Main supervisor: Professor Jens Erik Nielsen-Kudsk, MD, DMSc

Title of dissertation: "A novel porcine in-vivo model of acute pulmonary embolism. Role of pulmonary vasodilatation by stimulation of the NO-sGC-cGMP pathway."

Date for defence: 12/09/2019 at (time of day): 14:00 Place: Auditorium B, Aarhus University Hospital.

Press release (Danish)

Lungekarudvidende behandlinger ved stimulering af NO-sGC-cGMP kaskaden i en ny model for akut blodprop i lungerne i grise.

Lungekarudvidende behandlinger undersøges i en ny model for akut blodprop i lungerne i grise i et nyt ph.d.-projekt fra Aarhus Universitet, Health. Projektet er gennemført af læge og ph.d.-studerende Jacob Gammelgaard Schultz, der forsvare det d. 12/09/2019.

Behandlinger for akut lungeemboli fokuserer på at fjerne den obstruerende blodprop for derved at mindske lungekarmodstanden og forebygge svigt af højre hjertehalvdel. Den mekaniske obstruktion som selve blodproppen udgør forværres imidlertid af at ikke-okkluderede blodkar trækkes sammen. Lungekarudvidende behandlinger kan derfor være gavnlige hos patienter med akut lungeemboli, idet de kan modvirke den skadelige karsammentrækning og derved sænke lungekarmodstanden og aflaste højre hjertehalvdel. Stoffer der kan stimulere nitrogen oxid (NO)-guanylatcyklase (sGC)-cyklisk guanosin monophosphat (cGMP) kaskaden har vist potentiale som lungekarudvidende behandlinger. I denne Ph.d. søgte vi derfor at udvikle og karakterisere en ny eksperimentel dyremodel af akut lungeemboli i grise. I denne model undersøgte vi hvorvidt stimulering af NO-sGC-cGMP kaskaden med stofferne sildenafil, riociguat, inhaleret NO eller terlipressin forårsagede et fald i lungekarmodstanden og en bedring af højre hjertehalvdels funktion

Forsvaret af ph.d.-projektet er offentligt og finder sted den 12/09/2019 kl. 14:00 i Auditorium B (G206-142), Aarhus Universitetshospital, Indgang G, Palle Juul-Jensens Boulevard 99, 8200 Aarhus N. Titlen på projektet er "A novel porcine in-vivo model of acute pulmonary embolism. Role of pulmonary vasodilatation by stimulation of the NO-sGC-cGMP pathway.". Yderligere oplysninger: Ph.d.-studerende Jacob Gammelgaard Schultz, e-mail: jacobgschultz@clin.au.dk, tlf. +4529702879.

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Press release (English)

A novel porcine in-vivo model of acute pulmonary embolism. Role of pulmonary vasodilatation by stimulation of the NO-sGC-cGMP pathway.

The role of pulmonary vasodilatation by stimulation of the NO-sGC-cGMP pathway was evaluated in a novel porcine, in-vivo model of acute pulmonary embolism. The project was carried out by doctor and ph.d.-student Jacob Gammelgaard Schultz, who is defending her/his dissertation on 12/09/2019.

Therapies of acute pulmonary embolism (PE) focus on removing the mechanical obstruction of the pulmonary circulation to reduce pulmonary vascular resistance (PVR). Concurrent treatment with pulmonary vasodilators may however further reduce PVR by attenuating adverse vasoconstriction in unoccluded pulmonary arteries thereby preventing deterioration and failure of the right heart. Stimulators of the nitric oxide (NO)-soluble guanylate cyclase(sGC)-cyclic guanosine monophosphate (cGMP) pathway have shown promise as pulmonary vasodilators. Data supporting their use in acute PE is meanwhile lacking. In this thesis, we aimed to develop and characterize a novel model of intermediate-high-risk PE in pigs. In this model, we investigated if stimulation of the NO-sGC-cGMP pathway with sildenafil, riociguat, inhaled NO or terlipressin caused pulmonary vasodilation and improved RV function.

The defence is public and takes place on 12/09/2019 at 14:00 in Auditorium B (G206-142), Aarhus University Hospital, Entrance G, Palle Juul-Jensens Boulevard 99, 8200 Aarhus N. The title of the project is "A novel porcine in-vivo model of acute pulmonary embolism. Role of pulmonary vasodilatation by stimulation of the NO-sGC-cGMP pathway.". For more information, please contact PhD student Jacob Gammelgaard Schultz, email: jacobgschultz@clin.au.com, Phone +45 29702879.

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