

Press release

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Basic information

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Department of: Clinical Medicine

Main supervisor: Professor Tine Brink Henriksen, MD, PhD, Child and Adolescent Medicine, AUH

Title of dissertation: Point-of-care ultrasonography in newborns: Assessment of umbilical catheter placement

Date for defence: 10.01.2020 at (time of day): 12.00 Place: Auditorie J116-113, Aarhus University Hospital, Palle Juul-Jensens Blvd. 99, 8200 Aarhus, Denmark

Press release (Danish)

Ny viden kan bidrage til reduktion i brugen af røntgenundersøgelser til nyfødte og anviser struktureret oplæring af læger i nye procedurer

Et Ph.d. projekt fra Aarhus Universitet, Health rapporterer ny viden om træning af det højt specialiserede team i anvendelse af ultralyd som erstatning for røntgen kontrol af centralt placerede navlekatetre hos syge nyfødte. Projektet er gennemført af Rikke Kaae, Afdelingslæge, Neonatal afsnittet, AUH der forsvare sit Ph.d. projekt d. 10. januar 2020.

Centralt placeret navlevenekatetre benyttes til infusion af ernæringspræparater, væske og medicin. Arteriekatetre til blodprøvetagning samt kontinuerlig måling af blodtryk hos syge nyfødte. Røntgen bruges aktuelt som standard dokumentation af korrekt beliggenhed af kateterne inden anvendelse. Introduktion af ultralydbaseret kontrol af beliggenheden kan potentielt minimere tidsforbruget fra anlæggelse til anvendelse samt røntgen eksponering. Forudsætningen for anvendelse af ultralyd under og efter anlæggelse er imidlertid, at nødvendige ultralydskompetencer er til stede hos de læger, der har ansvaret for det akut syge barn.

Projektet har undersøgt læringseffekten af et videobaseret e-læringsprogram til uddannelse af danske neonatal læger i ultralydsskanning relateret til centralt placerede navlekatetre. En standardiseret grisemodel blev anvendt til at vise at 6 sessioner med praktisk ultralydsskanning i ti minutter resulterede i tilstrækkelige ultralydskompetencer til detektion af navlekatetres placering. Et scoringssystem til objektiv vurdering af ultralydsbilleders kvalitet som dokumentation af navlekatetres placering blev udviklet og valideret i projektet.

Forsvaret af Ph.d.-projektet er offentligt og finder sted den 10. januar 2020 kl. 12.00 i Auditorium J116-113, Aarhus University Hospital, Palle Juul-Jensens Boulevard 99, 8200 Aarhus, Denmark. Titlen på projektet er "Point-of-care ultrasonography in newborns: Assessment of umbilical catheter placement". Yderligere oplysninger: Rikke Kaae, email: Rikkenel@rm.dk, Phone +4540331335

Bedømmelsesudvalg:

Professor Ulla Breth Knudsen MD, PhD (chairman and moderator of the defense)
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Pediatrics & Medical Education Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, USA

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Press release (English)

New evidence may change clinical practice to ultrasound from X-ray to confirm umbilical catheter position in neonates by structured training of the bed-side physician

A PhD-project from Aarhus University, Health, reports new evidence related to continuing professional education of physicians and the potential use of ultrasound to determine appropriate positioning of umbilical catheters in newborns. The project was carried out by MD Rikke Kaae, Department of Child and Adolescent Medicine, AUH.

Central vascular access in neonates may be obtained through the umbilical vessels. Umbilical venous catheters are used for infusion of nutrition, fluid and medication, while arterial catheters are used for blood tests and continuous monitoring of blood pressure. After insertion, X-ray of chest and abdomen currently documents correct catheter placement. Introduction of examination by ultrasound of umbilical catheter placement by the attending physician may reduce time to clinical use and X-ray exposure. However, ultrasonography is operator dependent, and adequate US skills need to be established prior to safe introduction of ultrasonography as the primary modality for assessment of catheter placement.

The PhD-project investigated the learning outcome from using eLearning when training Danish neonatologists in the specific ultrasound task. By the use of a standardized piglet experiment the amount of additional hands-on training required for physicians to become competent in accurate assessment of umbilical catheter placement was estimated to six 10-minutes hands-on sessions. Finally, an assessment tool designed to enable future assessment of physicians' ultrasound skills in image-generation when examining umbilical catheter tip placement was validated in the project.

The defence is public and takes place on 10th of January 2020 12.00 in Auditorie J116-113, Aarhus University Hospital, Palle Juul-Jensens Blvd. 99, 8200 Aarhus, Denmark. The title of the project is "Point-of-care ultrasonography in newborns: Assessment of umbilical catheter placement". For more information, please contact Rikke Kaae, email:Rikkenel@rm.dk, Phone+4540331335

Assessment committee:

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