

Press release

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Basic information

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Department of: Clinical Medicine

Main supervisor: Jens Cosedis Nielsen

Title of dissertation: Radiofrequency ablation in human and animals with focus on contact force

Date for defence: 14th November 2018 at (time of day): 14:00 Place: Department of Cardiology, Conference room, Palle Juul-Jensens Boulevard 99, 8200 Aarhus N, Denmark

Press release (Danish)

Radiofrekvens ablation af mennesker og dyr med særlig fokus på contact force

Korrekt identificering af ar-omdannet hjertevæv efter en blodprop i hjertet og dannelse af tilstrækkelige læsioner er begge centrale principper ved radiofrekvens ablation af hjerterytmeforstyrrelser. Ablationskatetre med trykfølsomme sensorer – contact force sensorer – samt mikroelektroder kan potentielt identificere og eliminere kanaler af betydning for hjerterytmeforstyrrelser. En ikke-invasiv og relativ ufarlig teknik til at fremstille radiofrekvens læsionerne er ønskværdigt. I et nyt PhD studie fremvises, at patienter radiofrekvens ablateret med større grad af contact force har lavere risiko for tilbagefald af forkammerflimren. Desuden konkluderes, at øget contact force kun resulterer i større radiofrekvens læsioner i normal og lettere ar-omdannet hjertevæv. Ligeledes fremvises holderepunkter for, at radiofrekvens læsioner kan visualiseres nøjagtigt ved en ny MR-scannings teknik uden indgift af kontrast. Endeligt fremvises data, som viser, at mikro-elektroder på radiofrekvens kateteret kan identificere kanaler af betydning for hjerterytme forstyrrelser i ar-omdannet hjertevæv mere nøjagtigt end traditionelle elektroder. Disse resultater har bidraget til vores forståelse for, hvorfor visse patienter ikke har en gavnlig effekt af radiofrekvens ablation.

Resultaterne er fremkommet af et nyt ph.d.-projekt fra Aarhus Universitet, Health. Projektet er gennemført af læge Bawer Jalal Tofig, der forsvare det d. 14. november 2018.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 14. november kl. 14:00 i Hjertemedicinsk konference lokale, Aarhus Universitetshospital, Skejby, Palle Juul-Jensens boulevard 99, 8200 Aarhus N. Titlen på projektet er ”Radiofrekvens ablation af mennesker og dyr med særlig fokus på contact force”. Yderligere oplysninger: Ph.d.-studerende Bawer Jalal Tofig, e-mail: bawer@clin.au.dk, tlf. +45 2087 8724.

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Press release (English)

Radiofrequency ablation in human and animals with focus on contact force

Lead paragraph, ending with: The project was carried out by Bawer Jalal Tofig, who is defending his dissertation on 14th November 2018.

Correct identification of infarcted myocardium and the creation of adequate lesions are both crucial in treating cardiac arrhythmias with radiofrequency ablation. Force sensing - contact force - ablation catheters as well as microelectrodes can potentially identify and eliminate channels critical of cardiac arrhythmias. An accurate and non-invasive imaging technique to visualize radiofrequency lesions is desirable. A new PhD study shows, that patients ablated with greater contact force has a lower risk of recurrent atrial fibrillation. Furthermore, animal data obtained during the PhD study shows that radiofrequency lesion size only associates with contact force in healthy and borderzone myocardium. This animal study also presented data suggesting that radiofrequency lesion sizes may accurately be estimated by a novel contrast-free magnetic resonance imaging technique. The final study concludes that microelectrodes may identify scarred myocardium more accurately than traditional electrodes.

These results may benefit patients undergoing radiofrequency ablation of cardiac arrhythmias, and adds novel knowledge about dynamics of radiofrequency lesion in infarcted myocardium.

The project was carried out by Bawer Jalal Tofig, MD, who is defending his dissertation on the 14th of November 2018.

The defence is public and takes place on 14th November 2018 at 14:00 in Department of Cardiology (Conference Room), Aarhus University Hospital, Palle Juul-Jensens Boulevard 99, 8200 Aarhus N, Denmark. The title of the project is Radiofrequency ablation in human and animals with focus on contact force. For more information, please contact PhD student XX, email: X, Phone +45 2087 8724.

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