Press release

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Basic information

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Department of: Clinical Medicine

Main supervisor: John Michael Hasenkam

Title of dissertation: "Characterization of Aortic Valve-Sparing Techniques with Different Annuloplasty Rings"

Date for defence: 22-11-2019 at (time of day): 15:00 Place: Auditorium G206 (Auditorium B), entrance G, Aarhus University Hospital, Palle Juul-Jensens Boulevard 99, 8200 Aarhus N.

Press release (Danish)

Syge hjerteklapper: Reparér frem for at udskifte

I dag behandles patienter med en utæt aortaklap ved at få indsat en kunstig hjerteklap. Kunstige hjerteklapper er forbundet med risiko for nedbrydning, infektion og livslang blodfortyndende behandling.
Der er færre komplikationer og længere holdbarhed ved at reparere hjerteklappen. Vi mangler dog fortsat viden om hvordan reparationer påvirker de biomekaniske forhold og det har betydning for langtidsholdbarheden af den reparerede hjerteklap. Vi har nu undersøgt hvordan de biomekaniske forhold ændres ved at reparere hjerteklapper med forskellige kirurgiske ringe. Studiet blev udført på grise, hvor aortaringene blev indsat. Der blev indsat krafttransducere for at kunne sammenligne kraftudviklingen samt særlige positionskrystaller for at kunne måle ændringer i formen af aortaklappen. Dermed kunne vi med hidtil uset detaljering vise effekten af de tre forskellige operationer.
Vi fandt at en såkaldt Dacron-ring var mere natur-tro end andre ringe. Men ved at stabilisere hele området omkring den reparerede klap fik vi et endnu mere overbevisende resultat ved reparationen. Vores nye spændende fund skal bekræftes i langtidsstudier før vi ændrer kirurgisk praksis fra udskiftning af syge hjerteklapper til at reparere dem i stedet. Vi har således med et netop afsluttet ph.d. studie indhentet ny viden som vil optimere hjertekirurgisk behandling i fremtiden.

Projektet er et nyt ph.d.-projekt fra Aarhus Universitet, Health. Projektet er gennemført af PhD-studerende Leila Louise Benhassen, der forsvarer det d. 22/11/2019.

Forsvaret af PhD-projektet er offentligt og finder sted den 22/11/2019 i Auditorium G206 (Auditorium B), indgang G, Aarhus Universitetshospital, Palle Juul-Jensens Boulevard 99, 8200 Aarhus N.
Titlen på projektet er "Characterization of Aortic Valve-Sparing Techniques with Different Annuloplasty Rings".

Yderligere oplysninger:
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Press release (English)

Diseased heart valves: Repair rather than replace

The current treatment for patients with aortic insufficiency is aortic valve replacement. Prosthetic valves are associated with the risk of degeneration, infection and lifelong anticoagulation.
There are fever complications and longer duration by repairing the aortic valve. However, there is still a need for biomechanical knowledge of these procedures to improve the durability of the repaired valve. We have now investigated how the biomechanical properties change by repairing the aortic valve with different annuloplasty rings.
The study was performed on pigs, where the annuloplasty rings were inserted. Force transducers and position crystals were inserted to measure force development and changes in the shape of the aortic valve. With this technique we were able to meassure the effect of the three different surgical techniques with high precision.
We found that the Dacron-ring was more physiological compared with other rings. But the best stabilization of the repaired valve was achieved by stabilizing the entire area around the repaired valve. These interesting findings need to be confirmed in longterm studies before changing surgical practice from replacing to repairing the aortic valve. With this recently completed ph.d. study we have gained new knowledge that can optimize cardiac surgery in the future.

The project was carried out by PhD-student Leila Louise Benhassen, who is defending her dissertation on 22/11/2019.

The defence is public and takes place on 22/11/2019 at Auditorium G206 (Auditorium B), entrance G, Aarhus University Hospital, Palle-Juul Jensens Boulevard 99, 8200 Aarhus N. The title of the project is "Characterization of Aortic Valve-Sparing Techniques with Different Annuloplasty Rings". For more information, please contact PhD-student Leila Louise Benhassen, email: benhassen@clin.au.dk, Phone +45 29103936.

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