

Press release

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Basic information

Name: Tommy Bechsgaard Email: tb@clin.au.dk Phone: none

Department of: Clinical Medicine

Main supervisor: J. Michael Hasenkam

Title of dissertation: Biomechanical characterization of the aortic root and valve sparing procedures

Date for defence: 16.10.2017 at (time of day): 2 PM Place: Auditorium B, Aarhus Universityhospital, Palle Juul-Jensens Blvd 99, 8200 Aarhus N

Press release (Danish)

Biomekanisk karakterisering af aorta roden og klapbevarende operationsteknikker

Patienter med udposninger på den del af legemspulsåren der afgår fra hjertet kan i visse tilfælde behandles med en operation hvor den syge del erstattes med en protese. Samtidig bevares den hjerteklap som sidder imellem hjertet og legemspulsåren. Indgrebet er relativt nyt og det er endnu ikke afklaret hvilke mekaniske påvirkninger protesen og den tilpassede naturlige hjerteklap udsættes for.

Dette studie havde til formål at belyse bevægelses- og kraftforholdene der udspiller sig i den naturlige, raske legemspulsåre for hvert hjerteslag. Disse informationer blev derefter brugt som reference til en undersøgelse af hvordan de kirurgiske behandlingsmetoder påvirkede legemspulsåren tæt på hjertet. Den opnåede viden har vist, at der er forskel på de forskellige behandlingsmetoder. Men der er både fordele og ulemper ved disse. Studiet har derfor bidraget til, at grundlaget for den optimale behandlingsstrategi til den individuelle patient er udbygget. Endvidere kan denne viden også bruges til at optimere selve det kirurgiske indgreb. Alt i alt kan det give patienten en øget livskvalitet og mindske risikoen for senere re-operation.

Resultaterne er sammenfattet i et nyt ph.d.-projekt fra Aarhus Universitet, Health. Projektet er gennemført af Tommy Bechsgaard, der forsvare afhandlingen d. 16/10 2017.

Forsvaret af ph.d.-projektet er offentligt, foregår på engelsk og finder sted den 16/10 kl. 14.00 i Auditorium B, Aarhus Universitetshospital, Palle Juul-Jensens Boulevard 99, 8200 Aarhus N. Titlen på projektet er "Biomechanical characterization of the aortic root and valve sparing procedures". Yderligere oplysninger: Ph.d.-studerende Tommy Bechsgaard, e-mail: tb@clin.au.dk

Bedømmelsesudvalg:

Formand for bedømmelsesudvalget: Jens Erik Nielsen-Kudsk, Overlæge, Institut for Klinisk Medicin - Hjertesygdomme, Aarhus Universitetshospital.

Bedømmer 1: Erik Fosse, Professor, The Intervention Centre, Oslo Universitetshospital, Norge

Bedømmer 2: Kim Dremstrup, Instituttleder, Institut for Medicin og Sundhedsteknologi, Aalborg Universitet

Press release (English)

Biomechanical characterization of the aortic root and valve sparing surgical techniques

Patients with ascending aorta aneurisms can in some cases be treated with a valve-sparing operation where the diseased part of the aorta is replaced with a graft. The procedure is relatively new and it is

not yet known what kind of biomechanical effects the graft and the altered native heart valve are exposed to.

The aim of this study was to investigate the biomechanical conditions, including the force distribution and the geometrical changes observed throughout the heart cycle in a healthy, native ascending aorta. Such data will establish the basis for further research into the impact of different surgical procedures on the ascending aorta.

This study has shown that there is a difference between the two surgical procedures and there are advantages as well as disadvantages associated with each procedure. The study has contributed with new information thus establishing a solid foundation for selecting the optimum treatment strategy for the individual patient. Furthermore, this data can be used to optimize and refine the surgical procedure itself. The combined benefit for the patient includes increased quality of life and reduced risk of later reoperation. The PhD project was carried out by Tommy Bechsgaard, who is defending his dissertation on 10/16/2017.

The defence is public, and will be conducted in English on 10/16 at 2 pm in Auditorium B, Aarhus University Hospital, Palle Juul-Jensens Boulevard 99, 8200 Aarhus N. The title of the project is "Biomechanical characterization of the aortic root and valve sparing procedures". For more information, please contact PhD student Tommy Bechsgaard, email: tb@clin.au.dk

Assessment committee:

Chairman of the committee: Jens Erik Nielsen-Kudsk, Consultant, The Department of Cardiological Medicine B, Aarhus University Hospital.

External examiner 1: Erik Fosse, Professor, The Intervention Centre, Oslo University Hospital, Norway

External examiner 2: Kim Dremstrup, Head of Department, Department of Health Science and Technology, Aalborg University.

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