

Press release

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Basic information

Name: Benjamin Asschenfeldt

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Department of: Clinical Medicine

Main supervisor: Vibeke E. Hjortdal

Title of dissertation: The Brain Matters in Simple Congenital Heart Defects

Date for defence: 04.12.2020 at (time of day): 11.00 am Place: Auditorium J116-113, Entrance J, Level 1, J110, Aarhus University Hospital, Palle Juul-Jensens Boulevard 99, 8200 Aarhus N.

Press release (Danish)

Ph.d.-forsvar af projektet "The Brain Matters in Simple Congenital Heart Defects"

Hos børn med medfødt hjertefejl er der påvist høj forekomst af kognitive og adfærdsmæssige problemer samt morfologiske hjerneforandringer. Disse alvorlige langtidsfølger er hidtil uafklaret i de mest almindeligt forekommende typer af medfødt hjertefejl kaldet atrie septum defekt (ASD) og ventrikel septum defekt (VSD), som udgør op mod 50% af medfødte hjertefejl.

I det aktuelle ph.d.-projekt undersøgte vi derfor den kognitive og neurologiske udvikling blandt voksne som i barndommen blev opereret for en ASD eller VSD. Ved brug af Magnetisk Resonance Imaging (MR-skanning) og en omfattende neuropsykologisk undersøgelse, fandt vi frem til, at børn med en kirurgisk lukket ASD eller VSD, er i risiko for langvarige mén i voksenlivet i form af sub normalt kognitivt præstationsniveau og abnorm neuroanatomisk morfologi.

Disse forskningsresultater indikerer en ufordelagtig indvirkning af simpel medfødt hjertefejl på langsigtet neurologisk udvikling, og understreger nødvendigheden af tidlig screenings- og interventionsprogrammer for børn opereret for medfødt hjertefejl.

Disse banebrydende fund indenfor forskning i børnehjertekirurgi, er resultaterne fra et nyt ph.d.-projekt fra Aarhus Universitet, Health. Projektet er gennemført af læge Benjamin Asschenfeldt, der forsvare det d. 04/12

Forsvaret af Ph.d.-projektet er offentligt og finder sted den 04/12 kl. 11.00 i auditorium J116-113, Aarhus Universitetshospital, Palle Juul-Jensens Boulevard 99, Aarhus N. Titlen på projektet er "The Brain Matters in Simple Congenital Heart Defects". Virtuel deltagelse er mulig via Zoom (<https://aarhusuniversity.zoom.us/j/68519875285>). For yderligere oplysninger kontakt Ph.d.-studerende Benjamin Asschenfeldt, e-mail: ba@clin.au.dk, tlf. 4095 5516.

Bedømmelsesudvalg: Therese Ovesen, Professor, MD, PhD, DMSc, Depart. of Otorhinolaryngology, Head and Neck Surgery, Region Hospital West Jutland, (Chairman); Daniel J. Licht, MD, Professor of Pediatric Neurology, Buerger Center for Advanced Pediatric Care, Children's Hospital of Philadelphia, USA (Opponent 1); Mike Seed, MD, Associate professor, Division Head of Cardiology, The Hospital for Sick Children, Canada (Opponent 2).

Press release (English)

PhD defence of the project "The Brain Matters in Simple Congenital Heart Defects"

A distinctive pattern of neurodevelopmental and behavioral impairment and altered neuroanatomical morphology have been uncovered in survivors of congenital heart defect (CHD). However, these adverse outcomes remain unexplored in patients with the most

common subtypes of congenital heart defect called atrial septal defect (ASD) and ventricular septal defect (VSD), that account for approximately 50% of all CHD cases.

In the current PhD-project we therefore examined the impact of simple congenital heart defects on long-term brain development. Using a comprehensive neuropsychological assessment and state-of-the-art brain magnetic resonance imaging (MRI), we demonstrated subnormal neuropsychological performance and altered neuroanatomical morphology in adults who underwent surgery for isolated ASD or VSD during childhood.

These unique findings indicate an adverse impact of isolated simple CHD on long-term neurodevelopment, and furthermore, emphasize the necessity of childhood screening and early intervention for neurodevelopmental issues in simple CHDs.

The project was carried out by Benjamin Asschenfeldt, who is defending his dissertation on 4th of December.

The defence is public and takes place on 4th of December at Auditorium J116-113, Entrance J, Level 1, J110 in Aarhus University Hospital, Palle Juul-Jensens Boulevard 99, Aarhus N. Virtual attending is possible by Zoom (<https://aarhusuniversity.zoom.us/j/68519875285>). The title of the project is The Brain Matters in Simple Congenital Heart Defects. For more information, please contact PhD student Benjamin Asschenfeldt, email: ba@clin.au.dk, Phone +45 4095 5516.

Assessment committee: Therese Ovesen, Professor, MD, PhD, DMSc, Depart. of Otorhinolaryngology, Head and Neck Surgery, Region Hospital West Jutland, (Chairman); Daniel J. Licht, MD, Professor of Pediatric Neurology, Buerger Center for Advanced Pediatric Care, Children's Hospital of Philadelphia, USA (Opponent 1); Mike Seed, MD, Associate professor, Division Head of Cardiology, The Hospital for Sick Children, Canada (Opponent 2).

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