

Press release

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Basic information

Name: Rola Ismail Email: rola.ismail@clin.au.dk Phone:

Department of: Clinical Medicine

Main supervisor: Professor David J. Brooks

Title of dissertation: Study of the temporal and spatial relationships between neuroinflammation, beta-amyloid and tau aggregation in mild cognitive impairment and Alzheimer's disease – a longitudinal PET-study

Date for defence: 06/01/2020 at (time of day): 14.00 Place: Aarhus Universitetshospital, Palle Juul Jensens Boulevard 165, Indgang J, Auditorium J116-113, 8200 Aarhus N

Press release (Danish)

Undersøgelse af tidsmæssige og rumlige sammenhængen mellem neuroinflammation og aflejring af proteinerne beta-amyloid og tau i hjernen ved mild cognitive impairment og Alzheimers sygdom - et PET-studie.

Et nyt ph.d.-projekt fra Aarhus Universitet, Health benytter hjerneskaninger til at undersøge den tidsmæssige sammenhæng mellem patologierne ved tidlig Alzheimer's sygdom. Projektet er gennemført af Rola Ismail.

Pressemeddelelsen:

Alzheimer's sygdom er en irreversibel neurodegenerativ sygdom, som er karakteriseret ved svækkelse af kognitive og funktionelle evner og ved ophobningen af amyloide plaques og neurofibrillære tau tangles i hjernen. Neuroinflammation spiller en vigtig, men endnu ikke fuld klarlagt rolle. Det anslås, at over 90.000 danskere har demens, heraf udgør Alzheimers sygdom 60-70 % af alle tilfælde. Formålet med denne afhandling var at bruge PET-hjerneskaninger til at klarlægge den rumlige og tidsmæssige relation mellem inflammation og aflejring af proteinerne beta-amyloid og tau i hjernen hos en gruppe deltagere med mild kognitiv svækkelse, som vi har fulgt i to år og undersøgt med spatielle skanninger og kognitive tests. Vores fund er i overensstemmelse med teorien om et tofaset inflammationsforløb, en første beskyttende fase, der korrelerer med amyloid-niveauerne i de tidligere faser og en senere skadelig fase, der korrelerer med tau-niveauerne i de sene sygdomsfaser. Vi fandt også en sammenhæng mellem inflammation og kognitive værdier i forskellige kortikale områder på forskellige stadier af sygdommen.

Behandlingsstrategierne for Alzheimers sygdom, der er rettet mod inflammation, bør designes således at de stimulerer den beskyttende tidlige fase og undertrykker den sene skadelige fase af neuroinflammationen.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 6/1-2020 kl. 14.00 på Aarhus Universitetshospital, Palle Juul Jensens Boulevard 165, Indgang J, Auditorium J116-113.

Titlen på projektet er "Undersøgelse af tidsmæssige og rumlige sammenhængen mellem neuroinflammation og aflejring af proteinerne beta-amyloid og tau i hjernen ved mild cognitive impairment og Alzheimers sygdom - et PET-studie".

Yderligere oplysninger: Ph.d.-studerende Rola Ismail, e-mail: rola.ismail@clin.au.dk.

Bedømmelsesudvalg:

Formand: Professor Leif Østergaard, CFIN, Aarhus Universitet

Opponent: Professor Oskar Hansson, Clinical Memory Research Unit, Lund Universitet, Sverige.

Professor Steen Hasselbalch, Videnscenter for demens, Rigshospitalet, Denmark.

Press release (English)

The temporal and spatial relationship between neuroinflammation, amyloid and tau in Alzheimer's disease - a longitudinal PET study

The project was carried out by Rola Ismail who is defending her dissertation on 6/1-2020.

The press release :

Alzheimer's disease is an irreversible neurodegenerative disorder, characterized by progressive cognitive and functional impairment and deposition of amyloid and tau in the brain. Neuroinflammation plays an important, but yet not fully clear role in the trajectory of the disease pathology. Currently, no effective disease modifying treatments are available. More recently, increasing interest in the pathological role of inflammation as a target for treatment to halt progression has been seen.

The aim of this thesis was to use PET imaging to examine the longitudinal interrelationships between Alzheimer's disease pathologies in a cohort of mild cognitive impairment cases.

We found an association between brain inflammation levels and amyloid load in the early MCI and between inflammation and tau in the later MCI supporting the view that inflammation has a biphasic trajectory in early Alzheimer's disease which may comprise an early protective and a later detrimental phase. We also found that cognitive decline was associated with levels of amyloid, tau and inflammation in different areas of the brain at different stages of the disease.

The defence is public and takes place on January the 6th 2020 at 14.00 at Aarhus University Hospital, Palle Juul Jensens Boulevard 165, Entrance J, J116-113.

The title of the project is "Study of the temporal and spatial relationships between neuroinflammation, beta-amyloid and tau aggregation in mild cognitive impairment and Alzheimer's disease – a longitudinal PET-study"

For more information, please contact PhD student Rola Ismail, email: rola.ismail@clin.au.dk.

Assessment committee:

Chairman: Professor Leif Østergaard, CFIN, Aarhus Universitet

Examiners: Professor Oskar Hansson, Clinical Memory Research Unit, Lund Universitet, Sverige.
Professor Steen Hasselbalch, Danish Dementia Research Centre, Rigshospital, Denmark.

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