AARHUS UNIVERSITY

Press release

Please fill in this form and return it to graduateschoolhealth@au.dk in Word format along with a portrait photo in JPEG format, if you would like it to accompany your press release, no later than three weeks prior to your defence.

Basic information

Name: Thomas Nordstrøm Kjær Email: thomas.kjaer@clin.au.dk Phone: 20607067

Department of: Clinical Medicine

Main supervisor: Steen Bønløkke Pedersen

Title of dissertation: Effects of resveratrol on aspects of the Metabolic Syndrome and diseases associated with the Metabolic Syndrome

Date for defence: 01.03.2018 at (time of day): 13.00 Place: Lille Anatomiske Auditorie (Bygning 1231, lok. 424), Universitetsparken 231, 8000 Aarhus C

Press release (Danish)

Rødvins stoffet resveratrols effekt på det metaboliske syndrom og andre tilstande forbundet med overvægt

Resveratrol er en naturlig antioxidant der forefindes i skallen af vindruer og menes mere famøst at være den bestanddel af rødvin der har gavnlige helbredseffekter. I dyre og celleforsøg har resveratrol vist lovende effekter på de negative metaboliske konsekvenser af overvægt og fedme samt en række sygdomstilstande der er forbundet med overvægt og fedme . Således er det i dyrestudier velundersøgt at resveratrol forbedrer blodsukker regulation, nedsætter betændelsestilstand i fedtvæv, beskytter imod fedtleversygdom og normaliserer gnaveres livslængde på trods af vedvarende fedme. Hidtil har der kun været få veludførte studier af resveratrols effekt på tilstande forbundet med fedme i mennesker.
I ph.d. afhandlingen udforskes i det hidtil største kliniske studie af resveratrols langtidseffekter på det metaboliske syndrom (en tilstand med ophobning af riskofaktorer for hjertekar og metabolisk sygdom i det enkelte individ) samt godartet forstørrelse af prostata og kønshormoner i en gruppe af overvægtige mænd. I en dyremodel er det ydermere, som det første studie nogensinde, undersøgt hvorvidt resveratrol har en gavnlig effekt på hudsygdommen psoriasis som der er øget forekomst af blandt overvægtige mennesker.

Resultaterne af studierne viser at resveratrol i mænd med det metaboliske syndrom; ikke reducerer betændelsestilstanden i fedtvævet eller i kroppen som helhed ; ikke forbedrer blodsukkerregulationen/blodtryk/kolesteroler ; ikke reducerer leverfedt mængden; ikke reducerer prostatas størrelse. Paradoksalt fandt man at resveratrol i høj dosis forringede blodsukker regulationen samt forværrede enkelte kolesteroler typer.
Resveratrol reducerede forstadier til det mandlige kønshormon testosteron men ændrede ikke mængden af aktivt testosteron hvilket er hormonet der driver væksten af prostata. I dyrestudiet reducerede resveratrol kraftigt graden af psoriasis udslættet på en måde der kunne have relevans i mennesket.

Samlet set giver afhandlingen ny vigtig viden om at resveratrol i mennesker ikke har gavnlig effekt på godartet forstørrelse af prostata eller delelementer af det metaboliske syndrom i overvægtige mænd og at indtag for at forebygge eller behandle disse tilstande ikke kan anbefales. Resveratrol kan muligvis have gavnlig effekt på psoriasis og bør undersøges nærmere i mennesker.

Projektet er gennemført af Thomas Nordstrøm Kjær og udgår fra Medicinsk Endokrinologisk Afdeling (MEA) Aarhus Universitetshospital, Tage Hansens Gade samt Klinisk Institut på Aarhus Universitet.

Forsvaret af ph.d.-afhandlingen er offentligt og finder sted 1/3-2018, kl 13.00 i Lille Anatomiske Auditorie (Bygning 1231, lok. 424), Universitetsparken 231, 8000 Aarhus C.

Bedømmelsesudvalg:
Chairman of the committee and moderator of the defence:
Kirstine Stochholm, Specialist registrar, clincial associate professor, PhD, DMSc - Department of Internal Medicine and Endocrinology, Aarhus University Hospital, Norrebrogade,
8000 Aarhus C, Denmark

Referees:

Professor, consultant, DMSc Jens Bollerslev
Department of Endocrinology, Oslo University Hospital, Oslo, Norway

Professor Ylva Hellsten,
Department of Integrated Physiology, University of Copenhagen, Copenhagen, Denmark

Press release (English)

Resveratrol, a constituent of redwine and its effect on the metabolic syndrome and obesity associated disease

Resveratrol is a naturally occurring antioxidant found in the skin of grapes and famously thought to be the constituent of red wine that possesses salutary effects. In cell and animal studies resveratrol has shown promising effects on the negative metabolic consequences of overweight and obesity as well as a number of illnesses associated with overweight and obesity. Thus, it has been well documented that resveratrol improves regulation of blood glucose, reduces low-grade inflammation in adipose tissue, protects against fatty liver disease and normalizes lifespan of rodents despite them remaining obese. Hitherto, only a few well conducted clinical trials regarding the effects of resveratrol on obesity associated conditions have been performed. In the PhD the effects of long-term resveratrol treatment on the metabolic syndrome (a condition with multiple cardiovascular and metabolic risk factors in one individual), benign prostate enlargement and sex hormones was explored in a clinical trial on overweight/obese men suffering from the metabolic syndrome, a trial which is the biggest trial of its kind. Furthermore, in an animal model of psoriasis it was explored whether resveratrol has a beneficial effect on psoriasis which is more frequent in obese humans.

The results show that treating men with the metabolic syndrome with resveratrol; does not reduce adipose tissue or whole body low-grade inflammation; does not improve blood glucose regulation/blood pressure/cholesterols; does not reduce the amount of liver fat; does not reduce prostate size. Paradoxically, high-dose resveratrol was found to aggravate blood glucose regulation and certain cholesterols.
Resveratrol did reduce pre-cursors of the male sex-hormone testosterone but did not alter the levels of the active form of testosterone which is the form actively driving prostate growth. In the animal study resveratrol potently reduced the severity of the psoriasis rash in a fashion which might have relevance in the human setting.

Overall the thesis provides new and important knowledge in that resveratrol in the human setting does not have beneficial effect on benign prostate growth or any feature of the metabolic syndrome in overweight males and that supplementation to prevent of treat these conditions cannot be recommended. Resveratrol might have a beneficial on psoriasis and should be explored further.

The defence is public and takes place on 01.03.2018 at 13.00 in Lille Anatomisk Auditorium,(Bygning 1231, lok. 424), Universitetsparken 231, Aarhus University,

Assessment committee:
Chairman of the committee and moderator of the defence:
Kirstine Stochholm, Specialist registrar, clincial associate professor, PhD, DMSc - Department of Internal Medicine and Endocrinology, Aarhus University Hospital, Norrebrogade,

AARHUS
UNIVERSITY

8000 Aarhus C, Denmark

Referees:

Professor, consultant, DMSc Jens Bollerslev
Department of Endocrinology, Oslo University Hospital, Oslo, Norway

Professor Ylva Hellsten,
Department of Integrated Physiology, University of Copenhagen, Copenhagen, Denmark

Permission

By sending in this form:

- I hereby grant permission to publish the above Danish and English press releases as well as any submitted photo.
- I confirm that I have been informed that any applicable inventions shall be treated confidentially and shall under no circumstances whatsoever be published, presented or mentioned prior to submission of a patent application, and that I have an obligation to inform my head of department and the university's Patents Committee if I believe I have made an invention in connection with my work. I also confirm that I am not aware that publication violates any other possible holders of a copyright.