

Press release

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Basic information

Name: Linda Skibsted Kornerup

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Department of: Clinical Medicine

Main supervisor: Ebba Nexø

Title of dissertation: Absorption of Vitamin B12 - An experimental study in rats and a clinical study on patients undergoing bariatric surgery

Date for defence: 11th of May 2018 at (time of day): 14.00 Place: Blodprøver og Biokemi, AUH, room C3.15

Press release (Danish)

Optagelse af Vitamin B12 - et eksperimentelt studie i rotter og et klinisk studie af patienter i forbindelse med fedme kirurgi

Vitamin B12 er vigtig for dannelsen af røde blodlegemer og for vedligeholdelse af nervesystemet. Vitaminet findes i føden som hydroxy B12 (naturligt B12) og i vitaminpiller som cyanoB12 (syntetisk B12). Begge former anvendes i dag ved forebyggelse/behandling af B12 mangel, men vi ved ikke om de optages og fordeles på samme måde i kroppen. Optagelsen af B12 sker i et samspil mellem funktioner i mavesækken og i tyndtarmen, men vi ved ikke i detaljer hvordan optagelsen påvirkes ved fedmekirurgi, et indgreb hvor mavesækkens funktion påvirkes.

Linda Skibsted Kornerup, har med sit ph.d. studie fra Aarhus Universitet, Health undersøgt optagelse og fordeling af naturligt og syntetisk B12 i en rotte model og har i et klinisk studie belyst ændringer i optagelsen af B12 hos patienter, der har fået foretaget fedmekirurgi.

Rotte studiet viste, at naturligt og syntetisk B12 optages lige godt, men fordeles forskelligt i organerne. Særligt bemærkelsesværdigt er det, at der optages meget mere naturligt end syntetisk B12 i leveren. Resultatet sætter spørgsmålstegn ved, om de to former for B12 er ligeværdige.

Det kliniske studie viste, at patienternes evne til at optage B12 påvirkes af fedmeoperationer, og at de allerede 2 måneder efter operationen viser ændringer i de biomarkører, der anvendes til påvisning af B12 mangel. Resultaterne understreger behov for tidlig forebyggelse af B12 mangel hos denne patientgruppe og udfordrer, at det tager lang tid, inden patienterne udvikler B12 mangel.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 11/5-2018 kl. 14.00 i lokale C3.15, Aarhus Universitetshospital, Palle Juul-Jensens Boulevard 99, 8200 Aarhus N.

Titlen på projektet er "Absorption of Vitamin B12 - An experimental study in rats and a clinical study on patients undergoing bariatric surgery"

Yderligere oplysninger: Ph.d.-studerende Linda Skibsted Kornerup, e-mail: lindajen@rm.dk, tlf. +4526837998.

Bedømmelsesudvalg:

Jens Frederik Dahlerup, Clinical Associate Professor, MD, PhD, DMSc, Medicinsk Hepatogastroenterologisk afd. V, AUH, Danmark (Chairman)

Jean-Louis Guéant, Professor, MD, DSc, Department of Molecular Medicine and Personalized Therapeutics, National Center of Inborn Errors of Metabolism University Regional Hospital of Nancy, France

Lars Kristian Munck, Associate Professor, MD, PhD, DMSc, Medicinsk afd., Sjællands Universitetshospital, Køge, Danmark

Press release (English)

Absorption of Vitamin B12 - An experimental study in rats and a clinical study on patients undergoing bariatric surgery

Vitamin B12 is important for the production of red blood cells and the maintenance of the nervous system. The vitamin is present in food as hydroxy-B12 (natural B12) and in vitamin pills as cyano-B12 (synthetic B12). Both forms are currently used in prevention/treatment of B12 deficiency, but we do not know if the absorption and distribution in the body is equal. The absorption is a complex interaction between functions of the stomach and the small intestine, but it is not fully known how the absorption is affected by bariatric surgery, in which the function of the stomach is affected.

In her PhD project from Aarhus University, Health, Linda Skibsted Kornerup, studied the absorption and tissue distribution of natural and synthetic B12 in a rat model and showed changes in absorption of B12 in patients undergoing bariatric surgery.

The rat studies showed that natural and synthetic B12 are absorbed equally, but are distributed differently in the organs. Remarkably, more natural B12 than synthetic B12 is accumulated in the liver. The results question whether the two B12 forms are equal.

The clinical study showed that the patients' absorption capacity of B12 is affected by bariatric surgery and that changes in biomarkers used to detect B12 deficiency were present just 2 months after the surgery. The results emphasize the need for early prevention of B12 deficiency in these patients and challenge the concept that B12 deficiency in these patients develops long time after surgery.

The defence is public and takes place on 11th of May 2018 at 14.00 at Department of Clinical Biochemistry, room C3.15, Aarhus University Hospital, Palle Juul-Jensens Boulevard 99, 8200 Aarhus N.

The title of the project is 'Absorption of Vitamin B12 - An experimental study in rats and a clinical study on patients undergoing bariatric surgery'.

For more information, please contact PhD student Linda Skibsted Kornerup, email: lindajen@rm.dk, Phone +45 26837998.

Assessment committee:

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