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Vrije Universiteit Brussel

Prof. Dr. Yvan Vandenplas, Promotor

Department of Paediatrics
Universitair Ziekenhuis Brussel
Vrije Universiteit Brussel



PhD in Medical Sciences
2017-2018

INVITATION to the Public defence of

Bruno HAUSER

To obtain the academic degree of '**DOCTOR IN MEDICAL SCIENCES**'

**Gastric emptying in children in health and disease
measured with ¹³C-breath tests**

Monday 2 October 2017

Auditorium **Vanden Driessche**, 18:00
Faculty of Medicine and Pharmacy, Laarbeeklaan 103, 1090 Brussel

How to reach the campus Jette:

<http://www.vub.ac.be/english/infoabout/campuses>

Summary of the dissertation

Gastric emptying (GE) is an important step in the assimilation of nutrients. GE can be delayed in various paediatric diseases. The “gold standard” for measuring GE is gastric emptying scintigraphy (GES). The ¹³C-acetate breath test (13C-ABT) for measuring GE of liquids and the ¹³C-octanoic acid breath test (13C-OBT) for measuring GE of solids were developed as an alternative for GES. There are however only limited data in the literature concerning the measurement of GE with the 13C-ABT and the 13C-OBT using non dispersive infrared spectrometry (NIRS) in children. The aim of this research project was to study GE of liquids with the 13C-ABT and GE of solids with the 13C-OBT using NIRS in healthy children and in paediatric conditions possibly associated with delayed GE. We have shown a significant correlation between the gastric half-emptying times ($t_{1/2}$ -GE) measured with the 13C-ABT and the 13C-OBT using NIRS in comparison with GES for the measurement of GE of respectively a standardized test milk-drink and a standardized pancake test meal in children with upper gastrointestinal symptoms. We have also established normal values for $t_{1/2}$ -GE of these test meals in a standardized way in a relatively large number of healthy children and propose age-specific normative values for $t_{1/2}$ -GE of liquids and solids. We have shown that there is an important inter- and intra-individual variability for GE of liquids and solids that probably reflects true day-to-day variations in GE rather than variations with the measurement technique. Finally, we have shown that in children with cystic fibrosis and gastro-oesophageal reflux (GOR) symptoms, almost half of them have increased acid GOR and almost a quarter has delayed GE but that there is no relation between GOR and GE.

Curriculum Vitae

Bruno Hauser was born in Brussels on 19th of January 1964. He attended the Koninklijk Atheneum Koekelberg and graduated magna cum laude from the Medical School at the Vrije Universiteit Brussel in 1990. He was trained in paediatrics and in paediatric gastroenterology, hepatology and nutrition with Prof. Dr. Yvan Vandenplas at the children’s hospitals of the UZ Brussel and the Universitair Medisch Centrum Groningen between 1990 and 1995. He worked as a general paediatrician at the Kliniek Zusters van Barmhartigheid in Ronse and as a consultant for paediatric gastroenterology, hepatology and nutrition at the children’s hospital of the UZ Brussel between 1995 and 2001. In 2001 he returned to the children’s hospital of the UZ Brussel where he has been working ever since as a head of clinic in paediatric gastroenterology, hepatology and nutrition. His clinical research lies in the field of gastric emptying (subject of this PhD-thesis), cow’s milk protein allergy, cystic fibrosis, gastro-oesophageal reflux, *Helicobacter pylori* infection, inflammatory bowel disease and probiotics. He has published about a hundred Pubmed cited papers and has given numerous oral and poster presentations at international and national congresses and symposia. He is member of the Medical Council of the UZ Brussel. He is a board member of the Belgian Society for Paediatric Gastroenterology, Hepatology and Nutrition. He is also member of several international and national paediatric scientific societies.