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PhD in Medical Sciences
2016-2017

INVITATION to the Public defence of

Duc Nam NGUYEN

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

Assessment of brain dysfunction and delirium using serum biomarkers of brain injury and contrast-enhanced ultrasound imaging in circulatory shock and septic shock.

Monday 24 April 2017

Auditorium **P. Brouwer**, 17:00

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

Brain dysfunction and delirium are common complications of sepsis and shock, and multiple risk factors are implicated in the pathogenesis.

In this thesis, different precipitating risk factors of the development of brain dysfunction and therapeutic options have been investigated.

We show that elevation of the biomarkers of brain injury S100B and neuron-specific enolase is associated with the development of brain injury and worse outcome in sepsis.

We show that excessive release of the stress hormones cortisol and prolactin is associated with the development of brain dysfunction and delirium in sepsis.

We show that the degree and the recurrence of hypotension, and excessive fluid administration but not extracorporeal membrane oxygenation treatment, can promote the development of delirium.

Using contrast-enhanced ultrasound imaging we demonstrate that brain microcirculation is early altered in sepsis

We also observe that administration of vasopressin or drotrecogin alpha (activated) as adjunctive treatment can respectively reverse shock and reduce the serum levels of S100B in sepsis.

Curriculum Vitae

-Graduated Medical Doctor, Université Libre de Bruxelles, Brussels, Belgium in 1988

-Specialised in Cardiology, Université Libre de Bruxelles, Brussels, Belgium in 1994

-Specialised in Intensive Care Medicine, Vrije Universiteit Brussel, Brussels, Belgium in 1996

-Certificate of Radioprotection, Université Libre de Bruxelles, Brussels, Belgium in 1997

-Certificate of Neurosonology, University of Baltimore, Baltimore, USA in 2001

-Certificate of Critical Care and Emergency Ultrasound, Namur, Belgium in 2008

-University diploma in respiratory assistance and extracorporeal membrane oxygenator (ECMO), University of Marie-Curie, Paris, France in 2012

-Master in Echocardiography, University of Bordeaux, Bordeaux, France in 2013

-Master in Biostatistics, Université Catholique de Louvain, Louvain-La-Neuve in 2014

- Consultant cardiologist in the departement of Interventional Cardiology of Sint-Pieter University Hospital, Brussels, Belgium and in Paul Brien-Brugmann University Hospital, Brussels, Belgium from 1997 to 2000

-Head of Clinics in the department of Critical Care Medicine, Universitair Ziekenhuis Brussel, Brussels, Belgium since 2002