Focus of research group (I)

Investigators: L.J. Meijboom, H.J. Bogaard, P. Symersky, R.J. Lely, M.A.M. Beijk, E.J. Nossent, J.T. Marcus, F.S. de Man, P. Bonta, B.E. Westerhof, A. Vonk Noordegraaf.

PhD Students: N.J. Braams, G.A. Ruigrok

Department: Radiology and Nucleair Medicine, Pulmonology, Cardiology and Cardiothoracic surgery

Current mission, vision and aims:

1) To determine the clinical course of RV and lung vascular remodelling in CTEPH and CTED patients after PEA and BPA.

2) To improve our understanding of the mechanisms of late reverse and adverse remodelling of the lung vasculature and RV function.

Heart Failure & Arrhythmias

Pulmonary Hypertension & Thrombosis

Atherosclerosis & Ischemic Syndromes

Diabetes & Metabolism
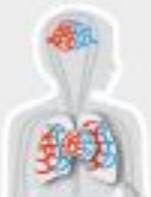
Microcirculation

Focus of research group (II)

Current expertise

1. CTEPH expert centre: all treatment modalities available: PEA, BPA and PH medication

2. State of the art imaging:
- ECG gated CTA pulmonalis
- Novel cardiac MRI techniques: lung perfusion, tissue characterization mapping and strain quantification.

3. Only centre in Netherlands with invasive cardiopulmonary exercise test

Current funding
Actelion

Heart Failure & Arrhythmias

Pulmonary Hypertension & Thrombosis

Atherosclerosis & Ischemic Syndromes

Diabetes & Metabolism
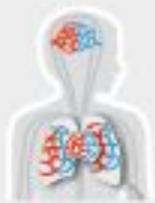
Microcirculation

Future plans

Short term (1-2 year) plan:

- To assess the change in extracellular volume (as measure for diffuse RV fibrosis) after unloading of the RV after PEA or BPA

- To evaluate the effect of PEA and BPA on the exertional contractile reserve in CTEPH patients

- To assess the change in serum levels of biomarkers of fibrosis and extracellular matrix after PEA or BPA

- To determine the relevance of remaining pulmonary vascular imaging abnormalities on CTPA for the presence of residual PH after PEA.
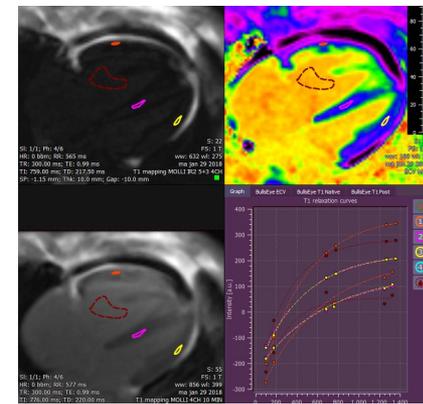
Plan: Multicenter prospective study with Denmark
Necessary infrastructure: Siemens CT Drive and Force, Siemens 1.5 and 3 T MRI, postprocessing software, (invasive) cardiopulmonary exercise test, biobank

Heart Failure & Arrhythmias

Pulmonary Hypertension & Thrombosis

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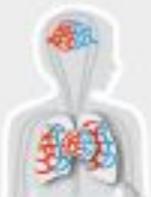
Microcirculation

Future plans

Long term (>2 year) plan

- To use new MRI imaging techniques such as 4 D flow and strain to better understand residual pulmonary hypertension in CTEPH patients after PEA or BPA.

- To accurately assess the prevalence of CTED

- To find less invasive diagnostic modalities to identify CTED patients suitable to PEA or BPA.

Necessary infrastructure: Siemens CT Drive and Force, Siemens 1.5 and 3 T MRI, postprocessing software, (invasive) cardiopulmonary exercise test, biobank.

Collaboration in ACS: Prof S. Middeldorp, Prof A.J. Nederveen