

PhD position available at Maastricht University for research project examining the role of the endothelial glycocalyx in coronary microvascular dysfunction and angina using magnetic resonance imaging (MRI)

The PhD student will study the functional contribution of the endothelial glycocalyx to the regulation of microvascular blood volume in the heart using magnetic resonance imaging (MRI). Studies will be performed both in experimental animals (rats) and patients with angina. The PhD project is financed by the Netherlands Heart Foundation. The research project is based on the observation that a considerable number of patients with symptoms of chest pain during exercise have no relevant stenosis in their coronary arteries; rather, the angina in these patients may relate to coronary microvascular dysfunction as a consequence of glycocalyx loss. Glycocalyx loss is associated with an impaired ability of vasodilators to increase microvascular blood volume by recruitment of glycocalyx volume. In the proposed PhD project, coronary microvascular blood volume will be measured with MRI, to test the hypotheses that loss of glycocalyx in the coronary circulation is associated with an impaired microvascular blood volume recruitment capacity and that patients with stable angina and without significant coronary artery lesions are characterised by a reduction in volume recruitment during vasodilator administration. Studies will be performed in rats in which glycocalyx loss is provoked by enzymes and atherogenic conditions, and in patients with stable angina who have no significant stenosis in their coronary arteries. It is expected that in all these cases coronary microvascular volume reserve is diminished due to glycocalyx loss. Results may signify the glycocalyx as novel target for therapeutic intervention in patients with angina.

We are looking for a candidate who has a Master degree in (Medical) Biology, Biomedical Engineering, Health Sciences, Medicine, or a comparable background. We are looking for a candidate with interest in MRI and/or cardiovascular (animal) research, and who enjoys working in an inter-disciplinary environment.

Information:

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