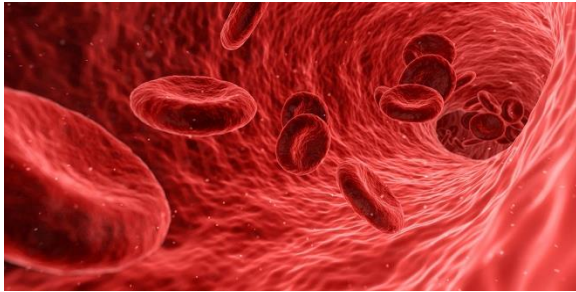


Serum Biomarkers for Early Detection and Staging of Peripheral Artery Disease



A novel panel of PAD-specific biomarkers from serum for the early detection of PAD in asymptomatic patients.

McMaster - Industry Liaison Office

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Abstract

Peripheral artery disease (PAD), a form of atherosclerosis manifested in the lower extremities, is associated with higher risk of cardiovascular events such as myocardial infarction, stroke, and vascular death. If left untreated, patients progress to more advanced stages of PAD like chronic limb-threatening ischemia (CLTI), which is characterized by non-healing ischemic ulcers and gangrene requiring limb amputation. PAD disease progression is highly variable and some CLTI amputee patients present with no PAD symptoms 6 months before onset. Currently, the ankle brake index (ABI, not available in many clinical centres) and clinical symptoms (e.g. self-reported pain, gait observation) are used together to derive a Rutherford score which is used to stage PAD – however, this approach is more subjective, variable, and not convenient for routine screening and early detection of PAD.

McMaster researchers have developed a screening strategy that utilizes serum biomarkers that differentiate late-stage CLTI from early onset intermittent claudication (IC). This discovery could enable more accurate diagnosis and risk assessment of PAD using a simple blood test (e.g. dried blood spot and point-of-care testing), and allow for low-cost therapeutic treatment monitoring that benefits high-risk patients prone to poor clinical outcomes (i.e., death, fragility, poor quality of life) if diagnosed based on late-stage symptoms.

Applications

- Medical Applications:
 - Non-invasive screening
 - Risk assessment and diagnostic testing for PAD

Advantages

- Non-invasive approach
- Increased accuracy in diagnosis and risk assessment