Non-invasive system for facilitating the diagnosis of stenosis or other pathology of non-carotid vasculature

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Technology description

Arterial stenosis is the cause of peripheral arterial disease in the elderly, diabetics and smokers and is a serious medical condition. Arterial stenosis is also one of the most common causes of early transplant failure. The present invention uses spectral Doppler ultrasound waveform of blood flow as a non-invasive method to diagnose stenosis.
Systems and computer implemented methods for detecting and evaluating flow of biological fluids in the body, and in particular facilitating medical diagnoses of pathologies such as stenosis or other pathology of a hepatic artery or other non-carotid vasculature by using machine learning to analyze a spectral Doppler ultrasound waveform of blood flow.

Publications

Automated Prediction of Hepatic Arterial Stenosis. Baraboo JJ, Dinakarpandian D, Chan SS.AMIA Summits on Translational Science Proceedings.2017; 2017:58-65
The Sonographic Stenosis Index: A new specific quantitative measure of transplant hepatic arterial stenosis. J Ultrasound Med. Le, et.al., 2017 Apr; 36(4):809-819

Application area

Can be applied to the diagnosis of stenosis in hepatic and other non-carotid vasculature
Anticipate use to aid diagnosis and monitoring of peripheral arterial disease

Advantages

Provides an accurate, non-invasive screening method to facilitate the medical diagnosis of stenosis
System is full automated, removing the risk of human error in calculating a stenosis index
Alternative to conventional angiography which is expensive and invasive
Does not require imaging agents which are sometimes nephrotoxic and/or which can trigger immune reactions

Institution

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