

METHOD AND SYSTEM FOR THE MEASUREMENT OF HEMODYNAMIC INDICES

KEYWORDS

- ❑ HEMODYNAMIC INDICES
- ❑ PROGRESSION OF ATHEROSCLEROTIC PLATE
- ❑ PERIPHERAL RESISTANCE MEASUREMENT

AREA

- ❑ BIOMEDICAL

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Patent Type

Patent for invention.

Ownership

Sapienza Università di Roma 100%.

Inventors

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Industrial & Commercial Reference

Biotechnology companies interested in the development of programs to analyze new hemodynamic parameters correlated with atherosclerosis progression.

Time to Market

Experimentation.

Availability

Cession, Research, Development, Experimentation and Collaboration.

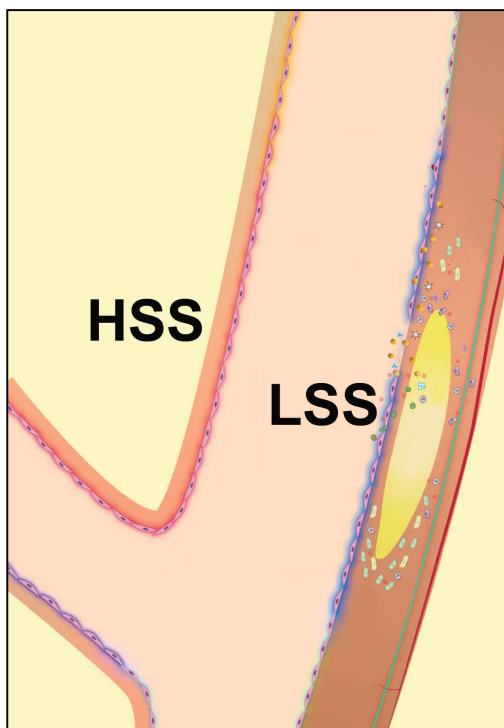


Fig. 1 The analysis of the index of turbulence will allow prediction of plaque progression in the initial phase of atherosclerosis.

Abstract

Development of a software for the analysis of mathematical data on arterial flow detected by angiography, nuclear non-magnetic resonance and ecodoppler. the software aims to include in the duplex test results some parameters that have had an important prognostic significance in our experimental and clinical studies in determining patients at risk for progression of atherosclerotic disease at different levels, and for the success of arterial reconstruction.

Pubblicazioni

- ❖ Growth factors and experimental arterial grafts. Sterpetti AV, Lepidi S, Borrelli V, Di Marzo L, Sapienza P, Cucina A, Ventura M. J Vasc Surg. 2016 Nov;64(5):1444-1449. doi: 10.1016/j.jvs.2015.07.091.



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METHOD AND SYSTEM FOR THE MEASUREMENT OF HEMODYNAMIC INDICES

Technical Description

Flow data analysis with a new software capable of determining in real time the turbulence index (it). ratio between the highest velocity and the lowest flow velocity recorded in each arterial tract. an index greater than 5 predisposes to the progression of the atherosclerotic plaque and the failure of an arterial reconstruction (endovascular or open). The software applied to the duplex allows you to determine the highest and lowest speed measured during the examination and the turbulence index is born from their ratio. Current peripheral resistance index (irpa) ratio between the speed before and after an arterial segment or arterial reconstruction. an index greater than 2 predisposes to atherosclerotic plaque progression or reconstruction failure. The software applied to the duplex allows you to determine the speeds measured during the exam and the current peripheral resistance index is born from their relationship. Predicted peripheral resistance index (irpp) inverse ratio between flow velocity after injection of papaverine and base at the level of a certain arterial segment. a ratio of less than 2 presupposes the failure of reconstruction (whether endovascular or open). the software applied to the duplex allows you to determine the speeds measured during the exam and the index of expected peripheral resistances arises from their relationship.

Technologies & Advantages

The advantages are related to identifying patients at high risk for progression of coronary or carotid atherosclerosis. the parameters can be extended to the identification of arterial reconstructions at risk for failure.

Applications

- ❖ Cardiology
- ❖ Vascular surgery

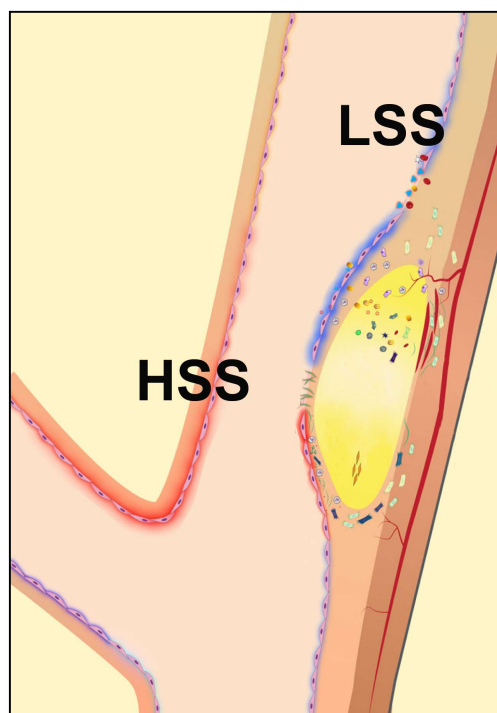


Fig. 2 The index of turbulence will allow to determine the risk for complete occlusion of the artery.

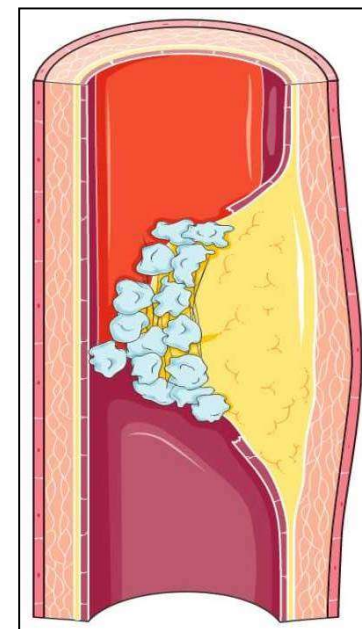


Fig. 3 The index of peripheral resistances will help to determine the risk for failure of arterial reconstructions.

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