



Excellent inter- and intra-observer reproducibility of microvascular tests using laser speckle contrast imaging.

Submitted by Anne Humeau-Heurtier on Tue, 07/15/2014 - 17:46

Titre	Excellent inter- and intra-observer reproducibility of microvascular tests using laser speckle contrast imaging.
Type de publication	Article de revue
Auteur	Humeau-Heurtier, Anne [1], Abraham, Pierre [2], Durand, Sylvain [3], Mahé, Guillaume [4]
Editeur	IOS Press
Type	Article scientifique dans une revue à comité de lecture
Année	2014
Langue	Anglais
Date	2013 Nov 19
Numéro	3
Pagination	439-446
Volume	58
Titre de la revue	Clinical hemorheology and microcirculation
ISSN	1875-8622

Post-occlusive reactive hyperaemia (PORH) and vasodilation induced by acetylcholine (ACh) iontophoresis are tests of endothelial function that can be studied with laser speckle contrast imaging (LSCI). LSCI has the advantage of having good temporal and spatial resolutions but can lead to a high amount of data when several minutes of recordings are needed. Parameters of PORH and ACh iontophoresis vasodilation are therefore often determined by several observers or by the same observer on different days. Nevertheless, inter- and intra-observer reproducibility for the determination of such parameters has not been studied yet. We analyzed inter-observer and intra-observer reproducibility of baseline, peak and plateau determination for the two microvascular tests. Ten recordings of both PORH and ACh iontophoresis have been analyzed by two blinded trained observers. For peak determination, inter-observer coefficient of variation (CV) was 4.7% and 3.0% for PORH and ACh respectively. Intra-observer reproducibility expressed in CV ranges from 2.4% to 5.4% for PORH-peak and ACh-peak. CVs for peak determination are better than for baseline or plateau determination for both microvascular tests. This suggests that when microvascular vasodilations are reported, the data segments measured have to be noted. Finally microvascular tests using LSCI have an excellent intra- and inter-observer reproducibility.

Résumé en anglais	
URL de la notice	http://okina.univ-angers.fr/publications/ua3437 [5]
DOI	10.3233/CH-131804 [6]
Lien vers le document	http://dx.doi.org/10.3233/CH-131804 [6]
Titre abrégé	Clin. Hemorheol. Microcirc.

Identifiant (ID) 24254582 [7]
PubMed

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- [6] <http://dx.doi.org/10.3233/CH-131804>
- [7] <http://www.ncbi.nlm.nih.gov/pubmed/24254582?dopt=Abstract>

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