



Effect of skin temperature on skin endothelial function assessment

Submitted by Anne Humeau-Heurtier on Tue, 07/15/2014 - 19:01

Titre Effect of skin temperature on skin endothelial function assessment

Type de publication Article de revue

Auteur Abraham, Pierre [1], Bourgeau, Mélissa [2], Camo, Maïte [3], Humeau-Heurtier, Anne [4], Durand, Sylvain [5], Rousseau, Pascal [6], Mahé, Guillaume [7]

Editeur Elsevier

Type Article scientifique dans une revue à comité de lecture

Année 2013

Date Jan-07-2013

Pagination 56-60

Volume 88

Titre de la revue Microvascular Research

ISSN 0026-2862

Mots-clés Acetylcholine/chemistry/pharmacology [8], Adult [9], Blood Flow Velocity [10], Contrast Media/pharmacology [11], Endothelium/pathology [12], Female [13], Humans [14], Hyperemia/metabolism [15], Iontophoresis/methods [16], Male [17], Microcirculation [18], Nitroprusside/pharmacology [19], Random Allocation [20], Skin Temperature [21], Skin/pathology [22], temperature [23], Time Factors [24], Young Adult [25]

Résumé en
anglais

PURPOSE: Microcirculatory dysfunction plays a key role in the development of sepsis during which core temperature is often disturbed. Skin microvascular assessment using laser techniques has been suggested to evaluate microvascular dysfunction during sepsis, but skin microcirculation is also a major effector of human thermoregulation. Therefore we aimed to study the effect of skin temperature on endothelial- and non-endothelial microvascular responses. **METHODS:** Fifteen healthy participants were studied at different randomized ambient temperatures leading to low (28.0±2.0 degrees C), intermediate (31.6±2.1 degrees C), and high (34.1±1.3 degrees C) skin temperatures. We measured skin blood flow using laser speckle contrast imaging on the forearm in response to vasodilator microvascular tests: acetylcholine (ACh) iontophoresis, sodium nitroprussiate (SNP) iontophoresis, and post-occlusive reactive hyperemia (PORH). The results are expressed as absolute (laser speckle perfusion units, LSPU) or normalized values (cutaneous vascular conductance, CVC in LSPU/mmHg and multiple of baseline). **RESULTS:** Maximal vasodilation induced by these tests is modified by skin temperature. A low skin temperature induced a significant lower vasodilation for all microvascular tests when results are expressed either in absolute values or in CVC. For example, ACh peak was 57.6±19.6 LSPU, 66.8±22.2 LSPU and 88.5±13.0 LSPU for low, intermediate and high skin temperature respectively (p<0.05). When results are expressed in multiple of baseline, statistical difference disappeared. **CONCLUSIONS:** These results suggest that skin temperature has to be well controlled when performing microvascular assessments in order to avoid any bias. The effect of skin temperature can be corrected by expressing the results in multiple of baseline.

URL de la
notice

<http://okina.univ-angers.fr/publications/ua3442> [26]

DOI

10.1016/j.mvr.2013.04.005 [27]

Lien vers le
document

<http://dx.doi.org/10.1016/j.mvr.2013.04.005> [27]

Titre abrégé

Microvascular Research

Liens

- [1] <http://okina.univ-angers.fr/pierre.abraham/publications>
- [2] [http://okina.univ-angers.fr/publications?f\[author\]=4847](http://okina.univ-angers.fr/publications?f[author]=4847)
- [3] [http://okina.univ-angers.fr/publications?f\[author\]=4848](http://okina.univ-angers.fr/publications?f[author]=4848)
- [4] <http://okina.univ-angers.fr/a.hum/publications>
- [5] [http://okina.univ-angers.fr/publications?f\[author\]=2083](http://okina.univ-angers.fr/publications?f[author]=2083)
- [6] [http://okina.univ-angers.fr/publications?f\[author\]=1152](http://okina.univ-angers.fr/publications?f[author]=1152)
- [7] [http://okina.univ-angers.fr/publications?f\[author\]=1153](http://okina.univ-angers.fr/publications?f[author]=1153)
- [8] [http://okina.univ-angers.fr/publications?f\[keyword\]=13131](http://okina.univ-angers.fr/publications?f[keyword]=13131)
- [9] [http://okina.univ-angers.fr/publications?f\[keyword\]=1002](http://okina.univ-angers.fr/publications?f[keyword]=1002)
- [10] [http://okina.univ-angers.fr/publications?f\[keyword\]=13132](http://okina.univ-angers.fr/publications?f[keyword]=13132)
- [11] [http://okina.univ-angers.fr/publications?f\[keyword\]=13133](http://okina.univ-angers.fr/publications?f[keyword]=13133)
- [12] [http://okina.univ-angers.fr/publications?f\[keyword\]=13134](http://okina.univ-angers.fr/publications?f[keyword]=13134)
- [13] [http://okina.univ-angers.fr/publications?f\[keyword\]=1075](http://okina.univ-angers.fr/publications?f[keyword]=1075)
- [14] [http://okina.univ-angers.fr/publications?f\[keyword\]=991](http://okina.univ-angers.fr/publications?f[keyword]=991)
- [15] [http://okina.univ-angers.fr/publications?f\[keyword\]=13135](http://okina.univ-angers.fr/publications?f[keyword]=13135)
- [16] [http://okina.univ-angers.fr/publications?f\[keyword\]=13136](http://okina.univ-angers.fr/publications?f[keyword]=13136)
- [17] [http://okina.univ-angers.fr/publications?f\[keyword\]=968](http://okina.univ-angers.fr/publications?f[keyword]=968)
- [18] [http://okina.univ-angers.fr/publications?f\[keyword\]=1229](http://okina.univ-angers.fr/publications?f[keyword]=1229)
- [19] [http://okina.univ-angers.fr/publications?f\[keyword\]=13137](http://okina.univ-angers.fr/publications?f[keyword]=13137)

- [20] [http://okina.univ-angers.fr/publications?f\[keyword\]=10441](http://okina.univ-angers.fr/publications?f[keyword]=10441)
- [21] [http://okina.univ-angers.fr/publications?f\[keyword\]=8475](http://okina.univ-angers.fr/publications?f[keyword]=8475)
- [22] [http://okina.univ-angers.fr/publications?f\[keyword\]=13138](http://okina.univ-angers.fr/publications?f[keyword]=13138)
- [23] [http://okina.univ-angers.fr/publications?f\[keyword\]=4629](http://okina.univ-angers.fr/publications?f[keyword]=4629)
- [24] [http://okina.univ-angers.fr/publications?f\[keyword\]=6070](http://okina.univ-angers.fr/publications?f[keyword]=6070)
- [25] [http://okina.univ-angers.fr/publications?f\[keyword\]=6036](http://okina.univ-angers.fr/publications?f[keyword]=6036)
- [26] <http://okina.univ-angers.fr/publications/ua3442>
- [27] <http://dx.doi.org/10.1016/j.mvr.2013.04.005>

Publié sur *Okina* (<http://okina.univ-angers.fr>)