Increased perfusion in normal appearing white matter in high inflammatory multiple sclerosis patients.

Abstract: Although cerebral perfusion alterations have long been acknowledged in multiple sclerosis (MS), the relationship between measurable perfusion changes and the status of highly active MS has not been examined. We hypothesized that alteration of perfusion can be detected in normal appearing white matter and is increased in high inflammatory patients. Thirty-three patients with relapsing-remitting MS underwent four monthly 3T MRI scans including dynamic susceptibility contrast perfusion-weighted MRI. Cerebral blood flow (CBF) and cerebral blood volume (CBV) were measured in normal appearing white matter. Patients were stratified in a high- and low-inflammatory group according to the number of new contrast enhancing lesions. Thirteen patients were classified as high-inflammatory. Compared to low-inflammatory patients, the high-inflammatory group demonstrated significantly higher CBV (p = 0.001) and CBF (p = 0.014) values. A mixed model analysis to assess independent variables associated with CBV and CBF revealed that white matter lesion load and atrophy measurements had no significant influence on CBF and CBV. This work provides evidence that high inflammatory lesion load is associated with increased CBV and CBF, underlining the role of global...
modified microcirculation prior to leakage of the blood-brain barrier in the pathophysiology of MS. Perfusion changes might therefore be sensitive to active inflammation apart from lesion development without local blood-brain barrier breakdown, and could be utilized to further assess the metabolic aspect of current inflammation.

Zeitschriftentitel / Abkürzung:
PLoS ONE

Jahr:
2015

Band:
10

Heft / Issue:
3

Seiten:
e0119356

Sprache:
eng

Volltext / DOI:
http://doi.org/10.1371/journal.pone.0119356

Pubmed:

TUM Einrichtung:
Neurologische Klinik und Poliklinik

Occurences:
- Einrichtungen > Fakultäten > Fakultät für Medizin > Kliniken und Institute > Neurologische Klinik und Poliklinik > 2015

entries: