



## Association between ambulatory 24-hour blood pressure levels and brain volume reduction: a cross-sectional elderly population-based study

Submitted by Emmanuel Lemoine on Wed, 04/22/2015 - 16:46

Titre	Association between ambulatory 24-hour blood pressure levels and brain volume reduction: a cross-sectional elderly population-based study
Type de publication	Article de revue
Auteur	Celle, S. [1], Annweiler, Cédric [2], Pichot, V. [3], Bartha, R. [4], Barthelemy, J.C. [5], Roche, F. [6], Beauchet, Olivier [7]
Editeur	American Heart Association
Type	Article scientifique dans une revue à comité de lecture
Année	2012
Langue	Anglais
Date	2012/10/10
Numéro	5
Pagination	1324-31
Volume	60
Titre de la revue	Hypertension
ISSN	1524-4563
Mots-clés	Aged [8], Antihypertensive Agents/therapeutic use [9], Blood Pressure Monitoring, Ambulatory/ methods [10], Blood Pressure/drug effects/ physiology [11], Brain Mapping [12], Brain/ pathology/physiopathology [13], Cognition/physiology [14], Cross-Sectional Studies [15], Female [16], Humans [17], Hypertension/drug therapy/physiopathology [18], Linear Models [19], Magnetic Resonance Imaging/ methods [20], Male [21], Middle Aged [22], Multivariate Analysis [23], Population Surveillance/methods [24], Psychomotor Performance/physiology [25], Time Factors [26]

Résumé en anglais	<p>Previous literature has shown mixed results regarding the association between blood pressure levels and brain volume reduction. The objectives of this study were to determine whether high blood pressure levels were associated with focal brain volume reduction and whether high blood pressure-related focal brain volume reduction was associated with a decline in executive function performance. On the basis of a cross-sectional design, 24-hour ambulatory blood pressure measurements, as well as brain morphology from 3-dimensional magnetic resonance images, were assessed among 183 participants (mean, 65 +/- 0.6 years; 62.4% women). Average levels of systolic and diastolic blood pressures, as well as dip, pulse pressure, and mean arterial blood pressure, were used as outcomes. Cortical gray and white matter volumes were determined by automatic calculation using Statistical Parametric Mapping segmentation. Folstein's Mini-Mental State Examination, digit span, part B of Trail Making, and Stroop tests were used to assess executive function performance. Sex, use of antihypertensive drugs, duration of hypertension, leukoaraiosis, body mass index, education level, and total brain matter volume were used as potential confounders. A significant blood pressure-related decrease in gray matter volume of the left supplementary motor areas (Brodmann area 6) and of the left superior and middle frontal gyrus (Brodmann area 8) was shown. No significant decrease was found with white matter volume. Blood pressure-related decreases in gray matter volume were significantly associated with a decline in executive function performance. The association of high blood pressure with brain volume reduction may in part explain blood pressure-related cognitive decline leading to dementia.</p>
URL de la notice	<a href="http://okina.univ-angers.fr/publications/ua10032">http://okina.univ-angers.fr/publications/ua10032</a> [27]
DOI	<a href="https://doi.org/10.1161/hypertensionaha.112.193409">10.1161/hypertensionaha.112.193409</a> [28]
Titre abrégé	Hypertension

## Liens

- [1] [http://okina.univ-angers.fr/publications?f\[author\]=17595](http://okina.univ-angers.fr/publications?f[author]=17595)
- [2] <http://okina.univ-angers.fr/cedric.annweiler/publications>
- [3] [http://okina.univ-angers.fr/publications?f\[author\]=17662](http://okina.univ-angers.fr/publications?f[author]=17662)
- [4] [http://okina.univ-angers.fr/publications?f\[author\]=17590](http://okina.univ-angers.fr/publications?f[author]=17590)
- [5] [http://okina.univ-angers.fr/publications?f\[author\]=17663](http://okina.univ-angers.fr/publications?f[author]=17663)
- [6] [http://okina.univ-angers.fr/publications?f\[author\]=17596](http://okina.univ-angers.fr/publications?f[author]=17596)
- [7] <http://okina.univ-angers.fr/o.beauchet/publications>
- [8] [http://okina.univ-angers.fr/publications?f\[keyword\]=1072](http://okina.univ-angers.fr/publications?f[keyword]=1072)
- [9] [http://okina.univ-angers.fr/publications?f\[keyword\]=13983](http://okina.univ-angers.fr/publications?f[keyword]=13983)
- [10] [http://okina.univ-angers.fr/publications?f\[keyword\]=15617](http://okina.univ-angers.fr/publications?f[keyword]=15617)
- [11] [http://okina.univ-angers.fr/publications?f\[keyword\]=15616](http://okina.univ-angers.fr/publications?f[keyword]=15616)
- [12] [http://okina.univ-angers.fr/publications?f\[keyword\]=8538](http://okina.univ-angers.fr/publications?f[keyword]=8538)
- [13] [http://okina.univ-angers.fr/publications?f\[keyword\]=15618](http://okina.univ-angers.fr/publications?f[keyword]=15618)
- [14] [http://okina.univ-angers.fr/publications?f\[keyword\]=15619](http://okina.univ-angers.fr/publications?f[keyword]=15619)
- [15] [http://okina.univ-angers.fr/publications?f\[keyword\]=6089](http://okina.univ-angers.fr/publications?f[keyword]=6089)
- [16] [http://okina.univ-angers.fr/publications?f\[keyword\]=1075](http://okina.univ-angers.fr/publications?f[keyword]=1075)
- [17] [http://okina.univ-angers.fr/publications?f\[keyword\]=991](http://okina.univ-angers.fr/publications?f[keyword]=991)
- [18] [http://okina.univ-angers.fr/publications?f\[keyword\]=15620](http://okina.univ-angers.fr/publications?f[keyword]=15620)
- [19] [http://okina.univ-angers.fr/publications?f\[keyword\]=14047](http://okina.univ-angers.fr/publications?f[keyword]=14047)
- [20] [http://okina.univ-angers.fr/publications?f\[keyword\]=15621](http://okina.univ-angers.fr/publications?f[keyword]=15621)
- [21] [http://okina.univ-angers.fr/publications?f\[keyword\]=968](http://okina.univ-angers.fr/publications?f[keyword]=968)
- [22] [http://okina.univ-angers.fr/publications?f\[keyword\]=5941](http://okina.univ-angers.fr/publications?f[keyword]=5941)
- [23] [http://okina.univ-angers.fr/publications?f\[keyword\]=8053](http://okina.univ-angers.fr/publications?f[keyword]=8053)

- [24] [http://okina.univ-angers.fr/publications?f\[keyword\]=15622](http://okina.univ-angers.fr/publications?f[keyword]=15622)
- [25] [http://okina.univ-angers.fr/publications?f\[keyword\]=12867](http://okina.univ-angers.fr/publications?f[keyword]=12867)
- [26] [http://okina.univ-angers.fr/publications?f\[keyword\]=6070](http://okina.univ-angers.fr/publications?f[keyword]=6070)
- [27] <http://okina.univ-angers.fr/publications/ua10032>
- [28] <http://dx.doi.org/10.1161/hypertensionaha.112.193409>

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