

Supplementary Online Content

Nation DA, Edmonds EC, Bangen KJ, et al. Pulse pressure in relation to tau-mediated neurodegeneration, cerebral amyloidosis, and progression to dementia in very old adults. *JAMA Neurol*. Published online March 30, 2015. doi:10.1001/jamaneurol.2014.4477.

eAppendix 1. Acknowledgement List for ADNI Publications.

eAppendix 2. Results.

This supplementary material has been provided by the authors to give readers additional information about their work.

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The Data and Publications Committee, in keeping with the publication policies adopted by the ADNI Steering Committee, here provide lists for standardized acknowledgement. The list consists of two parts: I. ADNI Infrastructure Investigators and Site Investigators and II. DOD ADNI Infrastructure Investigators and Site Investigators. Infrastructure Investigators represent the names responsible for leadership and infrastructure. Site Investigators represent the names of individuals at each recruiting site. All papers, including methodological papers, should have an acknowledgement list that consists of Infrastructure Investigators plus the FULL list.

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eAppendix 2. Results

Results of analyses of systolic and diastolic blood pressure are presented below. Note that all statistical methods were identical to those employed in pulse pressure analyses (*see* Statistical Analyses).

Systolic Blood Pressure

Biomarker profile analysis using ANCOVA revealed a significant age-group x biomarker profile interaction in association with systolic blood pressure values, $F(3,834)=3.47$, $p=.02$. Age-stratified analyses indicated simple main effects of biomarker profile on systolic blood pressure among the very-old, $F(3,133)=5.81$, $p=.001$. Post-hoc LSD analysis indicated that among the very-old, those who were both $A\beta_{1-42}$ and P-tau positive ($A\beta+Ptau+$) exhibited higher systolic blood pressure than the other biomarker profiles ($p<.001$ vs. $A\beta-Ptau-$; $p=.03$ vs. $A\beta+Ptau-$; $p=.07$ vs. $A\beta-Ptau+$). No significant simple main effects were observed among the young-old, $F(3,688)=.70$, $p=.55$.

Results of regression analyses indicated a significant age-group x systolic blood pressure interaction in association with $A\beta_{1-42}$ ($\Delta R^2=.003$, $\beta=-.47$, $p=.07$), but not P-tau ($\Delta R^2=.002$, $\beta=.40$, $p=.14$) or T-tau ($\Delta R^2<.001$, $\beta=.13$, $p=.62$). Age-stratified analyses indicated that higher systolic blood pressure was associated with lower CSF $A\beta_{1-42}$ concentrations in the very-old ($\Delta R^2=.038$, $\beta=-.20$, $p=.008$) but not the young-old ($\Delta R^2=.001$, $\beta=-.038$, $p=.26$).

Cox regression analyses indicated that higher systolic blood pressure was associated with more rapid progression to dementia among the very-old ($p=.02$, hazard ratio = 1.024), but not the young-old ($p=.98$).

Diastolic Blood Pressure

Biomarker profile analysis using ANCOVA revealed a significant age-group x biomarker profile interaction in association with diastolic blood pressure values, $F(3,834)=2.21$, $p=.09$. Age-stratified analyses indicated simple main effects of biomarker profile on diastolic blood pressure among the young-old, $F(3,688)=3.68$, $p=.01$. Post-hoc LSD analysis indicated that among the young-old, those who were P-tau positive only ($A\beta-Ptau+$) exhibited lower diastolic blood pressure than all other biomarker profiles ($p=.002$ vs. $A\beta-Ptau-$; $p=.02$ vs. $A\beta+Ptau-$; $p=.02$ vs. $A\beta+Ptau+$). No significant simple main effects were observed among the very-old, $F(3,133)=1.06$, $p=.36$.

Results of regression analyses indicated a significant age-group x diastolic blood pressure interaction in association with P-tau ($\Delta R^2=.003$, $\beta=.47$, $p=.08$), but not T-tau ($\Delta R^2=.001$, $\beta=.23$, $p=.38$) or $A\beta_{1-42}$ ($\Delta R^2=.001$, $\beta=-.17$, $p=.41$). Age-stratified analyses revealed a nonsignificant trend toward lower diastolic blood pressure being associated with higher P-tau levels in the young-old ($\Delta R^2=.004$, $\beta=-.063$, $p=.08$) but not the very-old ($\Delta R^2=.005$, $\beta=.07$, $p=.41$).

Cox regression analyses indicated that no significant association between diastolic blood pressure and progression to dementia among either age-group ($p=.65$ for young-old; $p=.10$ for very-old).

Mean Arterial Blood Pressure

Biomarker profile analysis using ANCOVA revealed a significant age-group x biomarker profile interaction in association with mean arterial pressure values, $F(3,834)=3.30$, $p=.02$. Age-stratified analyses indicated simple main effects of biomarker profile on mean arterial pressure among the very-old, $F(3,133)=3.67$, $p=.01$. Post-hoc LSD analysis indicated that among the very-old, those who were both $A\beta_{1-42}$ and P-tau positive ($A\beta+Ptau+$) showed higher mean arterial pressure than those exhibiting isolated $A\beta_{1-42}$ elevation or no biomarker positivity ($p=.005$ vs. $A\beta-Ptau-$; $p=.04$ vs. $A\beta+Ptau-$), with intermediate values being observed in those exhibiting isolated P-tau elevation ($A\beta-Ptau+$). No significant simple main effects were observed among the young-old, $F(3,688)=1.62$, $p=.18$.

Results of regression analyses indicated a significant age-group x mean arterial blood pressure interaction in association with P-tau ($\Delta R^2=.004$, $\beta=.59$, $p=.048$), non-significant evidence of an interaction for $A\beta_{1-42}$ ($\Delta R^2=.002$, $\beta=-.42$, $p=.14$) and no evidence for an interaction with T-tau ($\Delta R^2=.001$, $\beta=.29$, $p=.31$). Age-stratified analyses indicated that higher mean arterial blood pressure was associated with lower CSF $A\beta_{1-42}$ concentrations in the very-old ($\Delta R^2=.024$, $\beta=-.16$, $p=.034$) but not the young-old ($\Delta R^2=.003$, $\beta=-.054$, $p=.11$). The same analyses indicated no relationship between MAP and P-tau in either the very-old ($\Delta R^2=.018$, $\beta=.14$, $p=.10$) or the young-old ($\Delta R^2=.001$, $\beta=-.024$, $p=.51$), with similarly null findings for T-tau: very-old ($\Delta R^2=.004$, $\beta=.063$, $p=.44$) and young-old ($\Delta R^2<.001$, $\beta=-.016$, $p=.65$).

Cox regression analyses indicated that higher mean arterial blood pressure was associated with more rapid progression to dementia among the very-old ($p=.02$, hazard ratio = 1.042), but not the young-old ($p=.98$).