University of Missouri – St. Louis

The Graduate School

Announcement

An oral examination in defense of the dissertation for the degree
Doctor of Philosophy in Psychology with an emphasis in Behavioral Neuroscience

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M.A. in Psychology, May, 2012, University of Missouri-St. Louis
B.S. in Psychology, May, 2010, Truman State University

Effects of blood pressure on brain microstructure and cognition in healthy older adults

Date: February 29, 2016
Time: 12:00 p.m. to 2:00 p.m.
Place: MIMH Boardroom

Abstract
Hypertension represents one of the major modifiable health concerns in the U.S., with over one-third of adults classified as hypertensive, and another one-third meeting the classification for pre-hypertensive. Older adults are at the highest risk for hypertension. Although results have been mixed, a majority of the literature suggests that hypertension is associated with increased cognitive decline in older adults, particularly in frontally-mediated cognition such as executive functioning, processing speed, and attention. White matter hyperintensities (WMHs) and altered white matter microstructure are two consequences of hypertension that are thought to mediate the relationship between hypertension and cognitive aging. The goals of this study were to examine the impact of hypertension on two major white matter tracts that connect posterior regions of the brain with the frontal lobe and WMHs, to identify whether baseline blood pressure, baseline white matter tract integrity and baseline WMH volume contribute to frontally-mediated cognitive performance at a baseline visit, and to examine the longitudinal changes in white matter integrity and cognition in individuals who were hypertensive at baseline compared to baseline normotensives. Sixty older adults with both baseline and 3-year follow-up cognitive and imaging data were analyzed. Results indicated no significant relationships between blood pressure and white matter integrity or cognition at baseline or longitudinally. However, results suggested significant relationships between lower white matter integrity and worse cognitive performance on tests of executive functioning and processing speed. Although blood pressure did not significantly contribute to brain aging in this sample of healthy older adults, future work might identify other possible factors that could influence the relationship between aging and cognitive decline.

Defense of Dissertation Committee
Robert Paul, Ph.D. (Chair)
Sonya Bahar, Ph.D.
Michael Griffin, Ph.D.
David Tate, Ph.D.