

# Can Chronoscopic Reading in Whole Body Reaction Time be a Tool in Detecting Cognitive Dysfunction in Hypertensives? Findings from a Case Control Study

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## Abstract

**Background:** Hypertension on a long-term basis can cause target organ damage, especially the central nervous system, which can affect cognition. It is known that difference between simple and choice reaction time (RT) implies time required for cognition. Although delayed RTs indicate involvement of cognition, they cannot quantify how much time is required for cognition. **Aim:** Recording chronoscopic RT to quantify time required for cognition in hypertensives and compare them with controls. **Subjects and Methods:** This is a hospital-based case-control study conducted (August 2010 to January 2011) on 118 subjects attending an outpatient department using visual and whole body reaction timers having criteria of age and hypertensive condition, compared with an equal number of age- and sex-matched controls. Statistical analysis was carried out by Independent *t* test and duration of hypertension was correlated with whole body choice reaction time (WBCRT) C1 using Pearson's correlation. Predictive value of WBCRT C1 was calculated by using the receiver operating characteristic curve. **Results:** The WBCRT C1 562.6 (108) ms was more delayed among hypertensives compared with controls 523.5 (98.8) ms. There was no significant correlation between duration of hypertension and WBCRT C1 ( $r = -0.064$ ). The best cut-off value for WBCRT C1 when predicting cognitive dysfunction in hypertensive patients was 538.5 ms (sensitivity 76.2%, specificity 50%). **Conclusions:** WBCRT C1 can be a quantitative measurement of cognition. It can be used as a screening tool to detect cognitive dysfunction.

**Keywords:** Cognition, Hypertension, Visual reaction times

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