UTILITY OF THE CLOCK DRAWING TEST AS COGNITIVE SCREENING IN PATIENTS WITH ARTERIAL HYPERTENSION
(Heart and Brain Study in Argentina)

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Conclusions

• The prevalence of the cognitive impairment using the Clock Drawing Test was higher (36%) compared to the Mini-Mental Test (21%).

• Even, the 30% of the hypertensive patients with normal Mini-Mental Test had abnormal Clock Drawing Test result.

• This disparity in the results between two test was greatest in middle aged.

• In addition, this cognitive impairment was more frequent in women than men (38% vs 31%).
Background

1. HEART and BRAIN CONNECTION
   +700 papers support relationship between HTN & Cognition

2. VASCULAR BRAIN INJURY
   WML (White Matter Lesion) Desconnection the pre-frontal cortex
   Executive Dysfunction 20%-25% conversion to dementia

3. EPIDEMIOLOGICAL STUDIES in ARGENTINA
   5 Epidemiological studies
   +3000 hypertensive patients
   Cognitive impairment

Global Cognitive Impairment (MMSE)
- 18%

Executive Dysfunction (CDT)
- 38%
Purpose/Design/Methods
To compare the utility of two cognitive tests and to know the prevalence of the cognitive impairment in hypertensive patients.

POPULATION
533 Men
882 Women (62%)
Mean age 60 years
Education level 10 yrs.
Average BP 144/84 mm Hg

LOCATIONS
18 Hospitals
in Argentina
(Heart & Brain study)

INTERVENTION

1. Mini-Mental Test

2. Clock Drawing Test

FIRST ORDER
To write the number inside the circle in order and correct position

SECOND ORDER
Draw the hands on the clock indicating the time “twenty to four”

MMSE 19 questions + 1 draw
Clock Drawing test/Abnormal results (examples)

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<thead>
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<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
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<tbody>
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Findings/Results

1414 hypertensive pts.

Cognitive impairment

<table>
<thead>
<tr>
<th>Test</th>
<th>Abnormal test (%)</th>
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<tbody>
<tr>
<td>MMSE</td>
<td>21%</td>
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<tr>
<td>CDT</td>
<td>36%</td>
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20% 21% (p ns) 38% 31% (p 0.01)

CDT vs MMSE in hypertensive patients

Abnormal test (%) over age (years)
Key messages

1. HTN is the cause of vascular damage in the brain and the most important consequence beyond the stroke is cognitive impairment. So much that, HTN was recognized by Alzheimer Disease International as the main modifiable vascular risk factor for dementia.

2. One third of the hypertensive patients suffer cognitive impairment, and the most affected cognitive domain are the executive functions (depend of the integrity of the pre-frontal connection).

3. The clock drawing test detects the executive dysfunction. This is a simple, quick and easy screening test to be applied in the routine clinical practice.
Thank you for your attention