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A Preliminary Study on The Standardization of The Cognitive Perceptual Assessment for Driving

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Background: Return to driving after stroke is an important issue in stroke rehabilitation. We have developed the CPAD(Cognitive Perceptual Assessment for Driving), designed to assess the driving ability of patients with brain damage such as stroke. This study preliminarily investigated the reliability and validity of the CPAD. **Methods:** We tested 28 normal subjects. All subjects were administered (a) CPAD(Cognitive Perceptual Assessment for Driving) and (b) CBDI(Cognitive Behavioral Driver 's Inventory). **Results:** The result showed that CPAD was reliable in terms of internal consistency(Cronbach α .527) and item-total correlation coefficients. And CPAD seemed to be constructively valid because it negatively correlated with CBDI($r=-.473$). **Conclusion:** These results indicate the CPAD has the potential to become a useful tool for the driving ability assessment in stroke patients. (Korean Journal of Stroke 2004;6(1): 68~72)

Key Words: Automobile driving, Cognitive-perceptual assessment

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h. Trail Making Test B

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a. (Depth perception test)

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b. (Sustained attention test)

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Kruskal-Wallis

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c. (Divided attention test)

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d. (Stroop test)

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(Field dependency)

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e. (Digit span test)

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Pearson

f. (Field dependency)

(Table 2). CPAD

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g. Trail Making Test A

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($r = -.473$, $p < .05$).
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28 CPAD 10
Table 3
CPAD
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(Table 4). Table 4 CPAD
(Depth perception CN, RT), (Divided
attention), (Digit span), (Field
dependency), Trail Making test A, Trail Making
test B 7
($p < 0.05$),
(Sustained attention),
(Stroop test CN), (Stroop

Table 2. Correlation of CBDI¹⁾ and CPAD²⁾

	CBDI
CPAD	-.473*

1. CBDI : Cognitive Behavioral Driver 's Inventory
2. CPAD : Cognitive Perceptual Assessment for Driving
* $p < .05$

Table 3. Cognitive Perceptual Assessment for Driving scores of normal subjects

variables	Scores
Depth perception CN ¹⁾	30.7 ± 5.6
Depth perception RT ²⁾ (msec)	7201.6 ± 1463.2
Sustained attention CN	36.4 ± 3.8
Divided attention CN	43.9 ± 6.9
Stroop test CN	38.2 ± 2.8
Stroop test RT(msec)	1022.6 ± 331.4
Digit Span	6.8 ± 1.4
Field dependency CN	32.9 ± 5.7
Trail Making test A RT(msec)	31891.1 ± 17048.5
Trail Making test B RT(msec)	35947.6 ± 15065.8

1. CN : Correct Number
2. RT : Reaction Time
Values are Mean ± SD

Table 4. CPAD¹⁾ scores according to age in normal subjects

	20-40 (N=3)	41-50 (N=9)	51-60yr (N=9)	over 61yr (N=7)	P value
Depth perception CN ²⁾	37.0 ± 1.7	32.3 ± 5.3	29.7 ± 5.5	27.1 ± 4.9	<0.05
Depth perception RT ³⁾ (msec)	5870.3 ± 599.9	6575.9 ± 1029.9	8089.2 ± 1802.5	7435.3 ± 1024.3	<0.05
Sustained attention CN	38.7 ± 0.6	37.9 ± 3.3	34.1 ± 5.1	36.3 ± 1.9	0.154
Divided attention CN	49.0 ± 2.7	47.3 ± 7.4	39.6 ± 7.3	42.7 ± 3.3	<0.05
Stroop test CN	38.7 ± 1.2	39.4 ± 0.9	38.7 ± 1.1	35.7 ± 4.7	0.083
Stroop test RT(msec)	807.6 ± 52.6	1042.3 ± 288.5	938.2 ± 127.5	1198.1 ± 538.7	0.135
Digit Span	8.3 ± 0.6	7.4 ± 1.6	6.2 ± 0.8	6.1 ± 1.1	<0.05
Field dependency CN	40.0 ± 0.0	33.1 ± 7.8	30.6 ± 4.2	32.6 ± 2.9	<0.05
Trail Making test A RT(msec)	19099.7 ± 2583.3	23608.6 ± 3621.0	26023.0 ± 3554.3	55566.7 ± 19520.6	<0.01
Trail Making test B RT(msec)	19464.3 ± 3739.1	27170.1 ± 3976.5	36585.6 ± 7021.1	53477.0 ± 17872.3	<0.01

1. CPAD : Cognitive Perceptual Assessment for Driving
2. CN : Correct Number
3. RT : Reaction Time
Values are Mean ± SD

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