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APPENDICES

APPENDIX A

Table A1 Cognitive domains, representative neuropsychological tests, and symptoms of neuropsychiatric deficits

(Perrine and Kiolbasa, 1999)

Cognitive domain	Tests	Possible performance of neuropsychiatric patients
Intelligence	Wechsler Adult Intelligence Scale, 3rd Edition (WAIS-III). Wechsler Intelligence Scale for Children, 3rd Edition (WISC). Standford-Binet Intelligence Scale, 4th Edition.	Fund of knowledge typically unaffected; otherwise variable
Memory	Wechsler Memory Scale, 3rd Edition (WMS-III). California Verbal Learning Test. Rey-Osterrieth Complex Figure Benton Visual Retention Test (BVRT) Hopkins Verbal Learning Tests ReyAuditory-Verbal Learning Test.	Recent memory impairment Verbal memory deficit Visual memory deficit Working memory impairment

(continued.....)

Table A1 Cognitive domains, representative neuropsychological tests, and symptoms of neuropsychiatric deficits (continued)

Cognitive domain	Tests	Possible performance of neuropsychiatric patients
Attention	Digit span (WAIS-III) Visual Memory Span (WMS-III) Continuous Performance Test Stroop Test Cancellation Test Trail Making Test N-Back Test	Mental tracking deficits Concentration difficulty Sustained attention decrement Divided attention nability
Executive functioning	Category Test Wisconsin Card Sorting Test (WCST) Tower of London Test Stroop Test Trail Making Test	Preservation Lack of planning Impulsive responding Disorganization Cognitive inflexibility Poor judgments/reasoning
Language	Boston Diagnostic Aphasia Examination Multilingual Aphasia Examination Reitan-Indiana Aphasia Screening Wepman Auditory Discrimination Test	Poor fluency Anomia Word finding difficulty Increase/decrease in output Abnormal rate

(continued.....)

Table A1 Cognitive domains, representative neuropsychological tests, and symptoms of neuropsychiatric deficits (continued)

Cognitive domain	Tests	Possible performance of neuropsychiatric patients
Motor functioning	Finger Oscillation/Tapping Test Grooved Pegboard Test Purdue Pegboard Test Grip Strength Test	Limb weakness Apraxia Impaired fine motor control Decreased motor speed
Visuospatial and visuomotor	Judgement of Line Oreintation Visual Form Discrimination Test Facial Recognition Test Block Design (WAIS-III) BVRT and Rey-Osterrieth Complex Figure (copy condition)	Spatial disorientation Constructional deficits Impaired facial recognition Spatial judgments problems

APPENDIX B

Table B1 Statistical properties of WASI®

(Psychological Corporation, 1999)

Test	**Statistical Parameter**	**Value (Average value)**
Vocabulary subtest	Reliability Coefficient	0.90 - 0.98 (0.94)
Similarities subtest	Reliability Coefficient	0.84 - 0.96 (0.92)
Block design subtest	Reliability Coefficient	0.90 – 0.94 (0.92)
Matrix reasoning subtest	Reliability Coefficient	0.88 – 0.96 (0.94)
Verbal IQ (VIQ)	Reliability Coefficient	(0.96)
Performance IQ (PIQ)	Reliability Coefficient	(0.96)
Full Scale IQ-4 (FSIQ-4)	Reliability Coefficient	(0.98)
Vocabulary subtest	Reliability Coefficient of Interscorer (four raters)	0.98
Similarities subtest	Reliability Coefficient of Interscorer (four raters)	0.99

Table B2 Reliability Coefficients of the WASI® Subtests and IQ Scales by Age Group (Psychological Corporation, 1999)

	Age Group-Adult Sample												
Subtest/Scale	17-19	20-24	25-29	30-34	25-44	45-54	55-64	65-69	70-74	75-79	80-84	85-89	Average r_{xx}[a]
Vocabulary	0.90	0.91	0.93	0.92	0.96	0.96	0.94	0.95	0.95	0.94	0.93	0.98	0.94
Similarities	0.84	0.87	0.91	0.92	0.94	0.93	0.93	0.92	0.91	0.95	0.94	0.96	0.92
Block Design	0.92	0.94	0.93	0.94	0.94	0.92	0.91	0.94	0.90	0.91	0.90	0.92	0.92
Matrix Reasoning	0.91	0.88	0.91	0.92	0.94	0.96	0.96	0.96	0.96	0.94	0.95	0.94	0.94
VIQ	0.92	0.94	0.95	0.95	0.97	0.97	0.96	0.96	0.96	0.97	0.96	0.98	0.96
PIQ	0.95	0.94	0.95	0.96	0.96	0.96	0.96	0.97	0.96	0.96	0.95	0.96	0.96
FSIQ-4	0.96	0.96	0.97	0.97	0.98	0.98	0.98	0.98	0.98	0.98	0.97	0.98	0.98
FSIQ-2	0.94	0.93	0.95	0.95	0.97	0.98	0.97	0.97	0.97	0.96	0.96	0.98	0.96

[a]Average reliability coefficients were calculated with Fisher's z transformation

Table B3 Correlations Between the WASI® and the WISC-III (Psychological Corporation, 1999)

Subtest/Scale	WASI			WISC-III		
	***T* score**		**Scaled Score Equivalent[b]**			
	Mean[a]	*SD*		Mean[a]	*SD*	r_{12}[c]
Vocabulary	52.8	10.4	10.8	10.3	2.8	0.72
Similarities	52.4	9.9	10.7	11.2	3.0	0.69
Block Design	53.8	9.4	11.1	11.7	3.3	0.74
Matrix Reasoning[d]	51.7	9.7	10.2	-	-	-
VIQ	104.6	15.0		104.8	14.8	0.82
PIQ	104.7	13.9		105.5	14.1	0.76
FSIQ-4	105.2	14.3		105.4	14.2	0.87
FSIQ-2	104.3	14.5		105.4	14.2	0.81

Note. *N*=176. Correlations were computed separately for each order of administration in a counterbalanced design and corrected for restriction of range

[a] The value in the Mean columns are the average of the means of the two administration orders.

[b] The scaled-score equivalents of the WASI® subtest *T* scores are based on the data provided in Table ---

[c] The weighted average was obtained with Fisher's z transformation.

[d] Because the WISC-III does not have a matrix reasoning subtest, correlations could not be computed.

Table B4 Correlations Between the WASI® and the WAIS-III (Psychological Corporation, 1999)

Subtest/Scale	WASI®			WAIS-III		
	T score		Scaled Score Equivalent[b]			
	Mean[a]	*SD*		Mean[a]	*SD*	r_{12}[c]
Vocabulary	52.3	10.5	10.7	10.8	3.1	0.88
Similarities	52.4	10.3	10.7	10.8	3.0	0.76
Block Design	52.0	10.2	10.6	10.6	3.2	0.83
Matrix Reasoning	51.2	10.1	10.4	10.7	3.1	0.66
VIQ	104.1	15.2		103.8	15.4	0.88
PIQ	102.8	14.5		102.6	15.4	0.84
FSIQ-4	104.0	14.7		103.6	15.5	0.92
FSIQ-2	103.5	14.5		103.6	15.5	0.87

Note. N=248. Correlations were computed separately for each order of administration in a counterbalanced design and corrected for restriction of range

[a] The value in the Mean columns are the average of the means of the two administration orders.

[b] The scaled-score equivalents of the WASI® subtest *T* scores are based on the data provided in Table ---

[c] The weighted average was obtained with Fisher's z transformation.

Table B5 Qualitative Descriptions of WASI® IQScores (Psychological Corporation, 1999)

IQ Score	Classification	Percent Included of Theoretical Normal Curve
130 and above	Very Superior	2.2
120-129	Superior	6.7
110-119	High Average	16.1
90-109	Average	50.0
80-89	Low Average	16.1
70-79	Borderline	6.7
69 and below	Extremely Low	2.2

APPENDIX C

Descriptive data of AEDs levels of epileptic patients

Table C1 Number of patients for various sodium valproate levels (n = 15 for each group)

	Number of patients		
	VPA level less than 50 μg/mL	VPA level 50-100 μg/mL	VPA more than 100 μg/mL
Baseline	3	10	2
Visit 1	3	9	3
Visit 2	3	8	4

Table C2 Number of patients for various phenytoin levels

	Number of patients		
	PHT level less than 10 μg/mL	PHT level 10-20 μg/mL	PHT level more than 20 μg/mL
Baseline	5	9	1
Visit 1	6	6	3
Visit 2	5	8	2

APPENDIX D

Descriptive data of laboratory results of subjects

Table D1 Laboratory results of Phenytoin-receiving patients (N = 15)

	Baseline	Visit 1	Visit 2	**Average**
Hb (g/dL) (mean ± S.D.)	14.06 ± 1.05	13.59 ± 1.36	13.75 ± 0.81	**13.80 ± 1.09**
Hct (%) (mean ± S.D.)	41.80 ± 3.11	40.09 ± 3.89	40.90 ± 2.26	**40.93 ± 3.16**
RBC count ($X10^{12}$ cells/L) (mean ± S.D.)	4.88 ± 0.70	4.69 ± 0.70	4.77 ± 0.59	**4.78 ± 0.66**
MCHC (g/dL) (mean ± S.D.)	33.65 ± 0.89	33.91 ± 0.90	33.62 ± 0.85	**33.73 ± 0.87**
WBC ($X10^9$ cells/L) (mean ± S.D.)	6.69 ± 1.68	6.43 ± 1.93	6.57 ± 1.47	**6.57 ± 1.67**
%Neu (mean ± S.D.)	55.67 ± 7.34	55.23 ± 10.06	56.67 ± 7.33	**55.86 ± 8.17**
%Eos (mean ± S.D.)	2.41 ± 2.01	2.90 ± 2.58	2.56 ± 2.29	**2.62 ± 2.26**

(continued.....)

Table D1 Laboratory results of Phenytoin-receiving patients (continued)

	Baseline	Visit 1	Visit 2	**Average**
%Bas (mean ± S.D.)	0.44 ± 0.40	0.61 ± 0.57	0.63 ± 0.37	**0.56 ± 0.45**
%Lym (mean ± S.D.)	33.41 ± 6.23	33.27 ± 8.21	32.00 ± 7.26	**32.89 ± 7.14**
%Mono (mean ± S.D.)	8.00 ± 2.83	7.99 ± 2.19	8.13 ± 2.38	**8.04 ± 2.42**
Platelet count ($X10^9$ cells/L) (mean ± S.D.)	269.40 ± 95.32	272.40 ± 61.62	272.40 ± 70.68	**271.40 ± 75.44**
sCr (mg/dL) (mean ± S.D.)	0.74 ± 0.15	0.71 ± 0.17	0.70 ± 0.19	**0.72 ± 0.17**
BUN (mg/dL) (mean ± S.D.)	9.65 ± 2.29	9.72 ± 3.87	10.40 ± 3.17	**9.93 ± 3.12**
AST (U/mL) (mean ± S.D.)	33.67 ± 28.55	31.00 ± 25.68	22.80 ± 5.06	**29.16 ± 22.34**
ALT (U/mL) (mean ± S.D.)	41.40 ± 34.52	40.80 ± 37.36	32.53 ± 19.15	**38.24 ± 30.93**

Table D1 Laboratory results of Phenytoin-receiving patients (continued)

	Baseline	Visit 1	Visit 2	**Average**
Alb (mg/dL) (mean ± S.D.)	4.46 ± 0.30	4.37 ± 0.26	4.41 ± 0.24	**4.42 ± 0.27**
pH (mean ± S.D.)	6.77 ± 0.75	6.77 ± 0.94	6.47 ± 0.90	**6.67 ± 0.86**
Sp.gr (mean ± S.D.)	1.02 ± 0.01	1.02 ± 0.00	1.02 ± 0.01	**1.01 ± 0.01**

Table D2 Laboratory results of Sodium valproate-receiving patients (N = 15)

	Baseline	Visit 1	Visit 2	**Average**
Hb (g/dL) (mean ± S.D.)	13.93 ± 1.30	13.79 ± 1.37	13.85 ± 1.33	**13.86 ± 1.30**
Hct (%) (mean ± S.D.)	41.59 ± 3.27	41.19 ± 3.77	40.79 ± 3.46	**41.19 ± 3.44**
RBC count ($X10^{12}$ cells/L) (mean ± S.D.)	4.98 ± 0.52	4.92 ± 0.57	4.94 ± 0.57	**4.95 ± 0.54**
MCHC (g/dL) (mean ± S.D.)	33.59 ± 0.98	33.45 ± 0.70	33.67 ± 1.10	**33.57 ± 0.93**
WBC ($X10^{9}$ cells/L) (mean ± S.D.)	6.42 ± 1.77	6.09 ± 1.36	6.27 ± 1.71	**6.26 ± 1.59**
%Neu (mean ± S.D.)	55.93 ± 11.03	47.65 ± 12.07	49.79 ± 6.65	**49.79 ± 10.11**
%Eos (mean ± S.D.)	2.98 ± 1.86	3.09 ± 2.65	2.65 ± 1.86	**2.91 ± 2.11**
%Bas (mean ± S.D.)	0.59 ± 0.43	0.42 ± 0.31	0.59 ± 0.58	**0.53 ± 0.45**

Table D2 Laboratory results of Sodium valproate-receiving patients (continued)

	Baseline	Visit 1	Visit 2	**Average**
%Lym (mean ± S.D.)	35.71 ± 9.48	40.24 ± 10.75	38.34 ± 6.83	**38.10 ± 9.15**
%Mono (mean ± S.D.)	8.80 ± 2.64	8.53 ± 2.59	8.63 ± 2.45	**8.66 ± 2.51**
Platelet count ($X10^9$ cells/L) (mean ± S.D.)	236.60 ± 53.52	228.87 ± 53.01	243.73 ± 63.02	**236.40 ± 55.74**
sCr (mg/dL) (mean ± S.D.)	0.80 ± 0.17	0.83 ± 0.16	0.89 ± 0.19	**0.84 ± 0.17**
BUN (mg/dL) (mean ± S.D.)	10.62 ± 2.28	11.06 ± 2.21	10.82 ± 2.46	**10.83 ± 2.27**
AST (U/mL) (mean ± S.D.)	27.60 ± 17.51	25.33 ± 11.59	24.40 ± 7.09	**25.78 ± 12.58**
ALT (U/mL) (mean ± S.D.)	27.53 ± 28.27	29.40 ± 21.90	26.33 ± 19.49	**27.76 ± 23.01**
Alb (mg/dL) (mean ± S.D.)	4.49 ± 0.32	4.42 ± 0.32	4.37 ± 0.29	**4.43 ± 0.31**

Table D2 Laboratory results of Sodium valproate-receiving patients (continued)

	Baseline	Visit 1	Visit 2	**Average**
pH (mean ± S.D.)	7.23 ± 0.90	6.57 ± 0.50	6.77 ± 0.68	**6.86 ± 0.75**
Sp.gr (mean ± S.D.)	1.01 ± 0.00	1.01 ± 0.01	1.01 ± 0.01	**1.01 ± 0.01**

Table D3 Laboratory results of Normal volunteer-receiving patients (N = 15)

	Baseline	Visit 1	Visit 2	**Average**
Hb (g/dL) (mean ± S.D.)	13.63 ± 1.75	13.51 ± 1.86	13.72 ± 2.03	**13.62 ± 1.84**
Hct (%) (mean ± S.D.)	40.67 ± 5.16	40.32 ± 5.23	40.53 ± 5.63	**40.51 ± 5.22**
RBC count ($X10^{12}$ cells/L) (mean ± S.D.)	4.90 ± 0.78	4.82 ± 0.75	4.92 ± 0.77	**4.88 ± 0.75**
MCHC (g/dL) (mean ± S.D.)	33.53 ± 0.81	33.48 ± 0.86	33.80 ± 0.59	**33.61 ± 0.76**
WBC ($X10^9$ cells/L) (mean ± S.D.)	6.95 ± 1.54	6.73 ± 1.86	7.09 ± 2.05	**6.92 ± 1.79**
%Neu (mean ± S.D.)	58.58 ± 9.50	55.99 ± 7.70	57.01 ± 11.12	**57.20 ± 9.39**
%Eos (mean ± S.D.)	2.77 ± 2.30	2.54 ± 2.16	3.10 ± 2.66	**2.80 ± 2.34**
%Bas (mean ± S.D.)	0.25 ± 0.35	0.24 ± 0.32	0.39 ± 0.54	**0.29 ± 0.41**

Table D3 Laboratory results of Normal volunteer-receiving patients (continued)

	Baseline	Visit 1	Visit 2	**Average**
%Lym (mean ± S.D.)	31.49 ± 6.82	35.11 ± 6.10	33.60 ± 9.29	**33.40 ± 7.51**
%Mono (mean ± S.D.)	6.90 ± 1.96	6.11 ± 1.98	5.90 ± 2.81	**6.30 ± 2.27**
Platelet count ($X10^9$ cells/L) (mean ± S.D.)	290.93 ± 73.16	273.07 ± 64.36	284.33 ± 68.80	**282.78 ± 67.70**
sCr (mg/dL) (mean ± S.D.)	0.97 ± 0.23	0.97 ± 0.26	0.94 ± 0.27	**0.96 ± 0.25**
BUN (mg/dL) (mean ± S.D.)	11.14 ± 2.04	11.13 ± 2.59	10.80 ± 2.81	**11.02 ± 2.45**
AST (U/mL) (mean ± S.D.)	22.13 ± 14.94	21.27 ± 6.33	17.40 ± 4.45	**20.27 ± 9.72**
ALT (U/mL) (mean ± S.D.)	17.53 ± 9.13	19.47 ± 10.76	17.87 ± 10.84	**18.29 ± 10.07**
Alb (mg/dL) (mean ± S.D.)	4.37 ± 0.38	4.40 ± 0.35	4.41 ± 0.24	**4.40 ± 0.32**

Table D3 Laboratory results of Normal volunteer-receiving patients (continued)

	Baseline	Visit 1	Visit 2	**Average**
pH (mean ± S.D.)	6.80 ± 0.59	6.30 ± 0.46	6.87 ± 0.97	**6.66 ± 0.74**
Sp.gr (mean ± S.D.)	1.01 ± 0.01	1.02 ± 0.01	1.01 ± 0.01	**1.01 ± 0.01**

APPENDIX E

IRB of RTA Medical Department approved document

Q035h/47

คณะอนุกรรมการพิจารณาโครงการวิจัยกรมแพทย์ทหารบก
ชั้น 5 อาคารพระมงกุฎเกล้าเวชวิทยา วิทยาลัยแพทยศาสตร์พระมงกุฎเกล้า
315 ถนน ราชวิถี เขต ราชเทวี กรุงเทพฯ 10400 โทรศัพท์ (662) 354-7600-28 ต่อ 93681

ที่ 227 /2548

วันที่ 15 มีนาคม 2548

เรื่อง ตอบรับการแจ้งการเปลี่ยนแปลงโครงร่างวิทยานิพนธ์

เรียน นายธนกร ศิริสมุทร

อ้างถึง ภาควิชาเภสัชวิทยา คณะเภสัชศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ที่ ศธ.0512.14/- ลง 3 มีนาคม 2548

ตามที่ ท่านได้แจ้งการเปลี่ยนแปลงโครงร่างวิทยานิพนธ์ เรื่อง " ผลของฟีโนบาร์บิทาลและโซเดียมวาลโพรเอตต่อเชาวน์ปัญญาและอารมณ์ในผู้ป่วยโรคลมชักชาวไทย " [Effects of Phenobarbital and Sodium Valproate on Cognition and Mood in Thai Epileptic Patients.] ว่ามีการเปลี่ยนแปลงดังนี้.-

1. เปลี่ยนชื่อโครงการวิจัย เป็น "ผลของเฟนีโทอินและโซเดียมวาลโพรเอทต่อเชาว์ปัญญาและอารมณ์ในผู้ป่วยโรคลมชักชาวไทย" (Effects of Phenytoin and Sodium Valproate on Cognition and Mood in Thai Epileptic Patients)
2. เปลี่ยนคำว่า " ฟีโนบาร์บิทาล" เป็น "เฟนีโทอิน"
3. หัวข้อขนาดของกลุ่มตัวอย่าง หน้าที่ 4 เดิม "ร้อยละ76" เปลี่ยนเป็น "ร้อยละ10" และ "ร้อยละ 20" เปลี่ยนเป็น "ร้อยละ 65"
4. จำนวนงบประมาณการวิจัย

คณะอนุกรรมการพิจารณาโครงการวิจัย กรมแพทย์ทหารบก ขอตอบรับการเปลี่ยนแปลงโครงร่างวิทยานิพนธ์ดังกล่าว ในวันที่ 11 มีนาคม 2548

จึงเรียนมาเพื่อกรุณาทราบ

ขอแสดงความนับถือ

พันเอกหญิง

(อาภรณ์ภิรมย์ เกตุปัญญา)
ประธานคณะอนุกรรมการพิจารณาโครงการวิจัย
กรมแพทย์ทหารบก

VITAE

Mr. Thanakorn Sirisamut was born on January 23, 1977. After graduation from The Faculty of Pharmaceutical Science, Chulalongkorn University in 2000 he started to work as hospital pharmacist in Siriraj Hospital, Mahidol University in April 2000. He also got a Bachelor of Arts (Thai Studies) from The Faculty of Arts, Sukhothai Thammathirat Open University on August 2003. He had been enrolled in a study program for Master degree of Pharmacology in the Faculty of Pharmaceutical Science, Chulalongkorn University since June 2003.