CHAPTER IV

RESULTS

1. Reliability of measurements

1.1 Six Minute Walk Test (6MWT)

Ten healthy participants (four men and six women) with a mean age of 27±7 years participated to the reliability study of 6MWT. The mean of weight and height is shown in Table 2.

The data were determined the reliability by using test-retest with one day apart. The result showed high reliability of testing (Table 4) and it was properly used in this present study.

Table 2 Characteristics data of all participants for reliability study of 6MWT (n=10)

Characteristics	Mean±SD
Age (years)	27±7
Weight (cm.)	58.25±13.45
Height (cm.)	163±9.31

1.2 Pulmonary Function Tests (PFTs)

Ten healthy participants (four men and six women) with a mean age of 26±2 years participated to the reliability study of PFTs. The mean of weight and height is shown in Table 3.

The reliability study of pulmonary function tests ($FEV1_{\%predicted}$, $FVC_{\%predicted}$, $FEF_{25-75\%predicted}$ and $PEFR_{\%predicted}$) was also done by test-retest reliability with one day apart. The results showed that the reliability of all of variables were higher than 0.900 (Table 4). Therefore, the tester also has high reliability for all of these outcome measurements and it was properly used all these measurements in this present study.

Table 3 Characteristics data of all participants for reliability study of PFTS (n=10)

Characteristics	Mean±SD
Age (years)	26±2
Weight (cm.)	65.15±20.47
Height (cm.)	165.80±11.17

Table 4 The intraclass correlation coefficients ($ICC_{(1,3)}$) of measurements (n=10)

Tests	$ICC_{(1,3)}$
6MWT	0.977
$FEV1_{\%predicted}$	0.987
$FVC_{\%predicted}$	0.976
$FEF_{25-75\%predicted}$	0.913
$PEFR_{\%predicted}$	0.965

2. Demographic data of participants

Seventeen patients were included in the study, twelve patients completed the study (71 %). Among participants, one person was SCLC. The reasons for those who did not complete the study varied, they included loss of contact (one person), had liver complications (one person) and lung effusion (one person) after 2nd course of chemotherapy, the patients had added radiotherapy (one person) and the patient did not to participate because of being tired and did not have time (one person). Participants who completed the final assessment had a mean age of 63±8 years (ten males and two females), ten participants had a smoking history (83 %), four participants were employees (33.33 %), six participants were unemployed (50 %) and another two were a trader and a farmer (16.67 %) all participants were NSCLC type. Drug regimens that participants received varied including paclitaxel, carboplatin, cisplatin, gemcitabine, etoposide, intaxel, taxotere, and taxol. All demographic data of all participants are shown in Table 5.

Table 5 Characteristics data of subjects (n=12)

No	Gender	Age (yrs)	Cigarette's history	Occupation	Cancer type
1	M	65	Smoke	No working	NSCLC
2	M	58	Smoke	Employee	NSCLC
3	M	63	Smoke	No working	NSCLC
4	M	57	Smoke	No working	NSCLC
5	M	61	Smoke	Trader	NSCLC
6	M	62	Smoke	No working	NSCLC
7	M	72	Smoke	Employee	NSCLC
8	M	79	Smoke	No working	NSCLC
9	F	54	Non smoke	Employee	NSCLC
10	M	51	Smoke	Employee	NSCLC
11	F	71	Non smoke	No working	NSCLC
12	M	67	Smoke	Farmer	NSCLC

3. Outcome measurements

3.1 Exercise capacity

There were no statistically significant differences on six minute walk distance after final assessment. The mean of six minute walk distance of the 1st, 2nd, and 3rd are shown in Table 6 and Figure 3.

Table 6 Six Minute Walk Distance (n=12), within group comparision using Repeated measured ANOVA

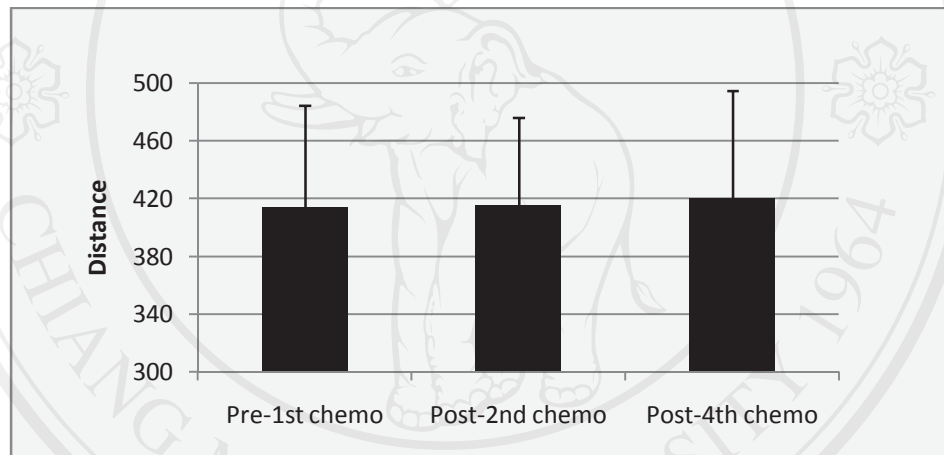| Parameter 6MWD	Pre-1st chemo.	Post-2nd chemo.	Post-4th chemo.
Mean ± SD (m.)	413.79±70.99	415.35±60.92	420.63±74.39
Min-Max (m.)	301.00-561.00	326.50-533.00	302.50-517.25

Figure 3 Six Minute Walk Distance (Mean ± SD) (n=12)

3.2 Cardiovascular variables response to 6MWT

Hear rate, blood pressure, oxygen saturation, dyspnea and fatigue scores were measured at pre-test and post-test of 6MWT. There was no significant difference of all parameters (Table 7), except post-heart rate and post-fatigue were seen increasing significant change. For post-heart rate, could see the difference between 1st and 3rd assessed and between 2nd and 3rd assessed, P = 0.020 and 0.007, respectively (Table 7 and Figure 4).   While post-fatigue, difference could be seen between 1st and 2nd assessment, P = 0.029 (Table 7 and Figure 5).

The variables that tended to increase after finished the third assessment was percent maximum-HR_{change}. Nevertheless, the mean of almost of those variables increased if compared between pre-test and post-test, except post-diastolic (2nd assessed) and post-SpO_2 (2nd assessed) decreased.

Table 7 Cardiovascular variables responded to 6MWT (Mean ± SD) (n=12), [a] = significant difference from pre-1st course of chemotherapy, [b] = significant difference from post-2nd course of chemotherapy, within group comparison using repeated measured ANOVA

Variables	**Pre-1st chemo.**	**Post-2nd chemo.**	**Post-4th chemo.**
pre-HR	86.83±11.01	88.75±11.26	93.58±12.29
post-HR	100.75±11.90	106.92±14.82	116.00±17.1[a,b]
%max-HR_{change}	8.90±7.47	11.54±6.22	14.32±5.92
pre-systolic	118.50±20.11	113.50±14.80	115.50±20.21
post-systolic	127.67±21.82	121.08±16.58	126.58±22.05
%systolic-change	7.95±8.23	7.18±10.28	9.86±7.81
pre-diastolic	82.58±15.20	77.92±6.04	78.00±9.71
post-diastolic	84.83±14.82	77.25±7.25	80.25±11.25
%diastolic-change	2.98±4.78	-0.67±6.75	2.79±5.52
pre-SpO_2	96.42±1.56	97.25±1.71	97.08±1.73
post-SpO_2	97.00±1.21	97.08±1.38	97.17±2.25

Table 7 (Continued)

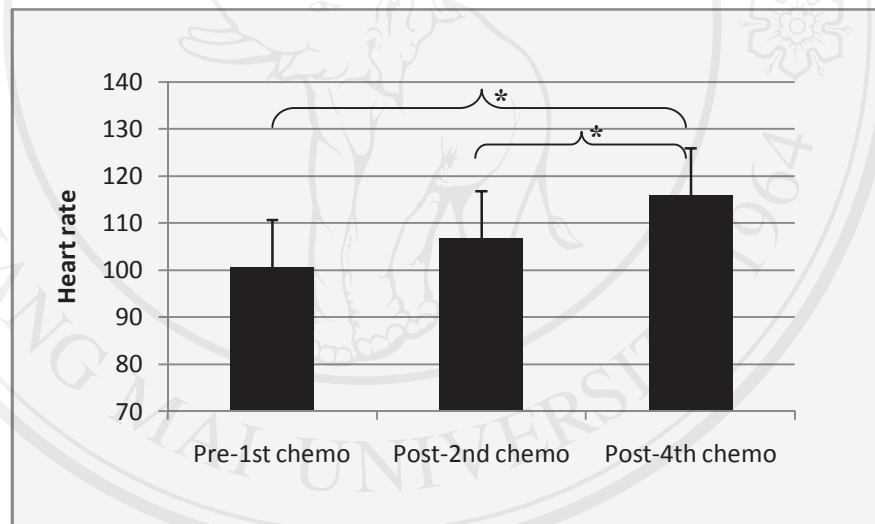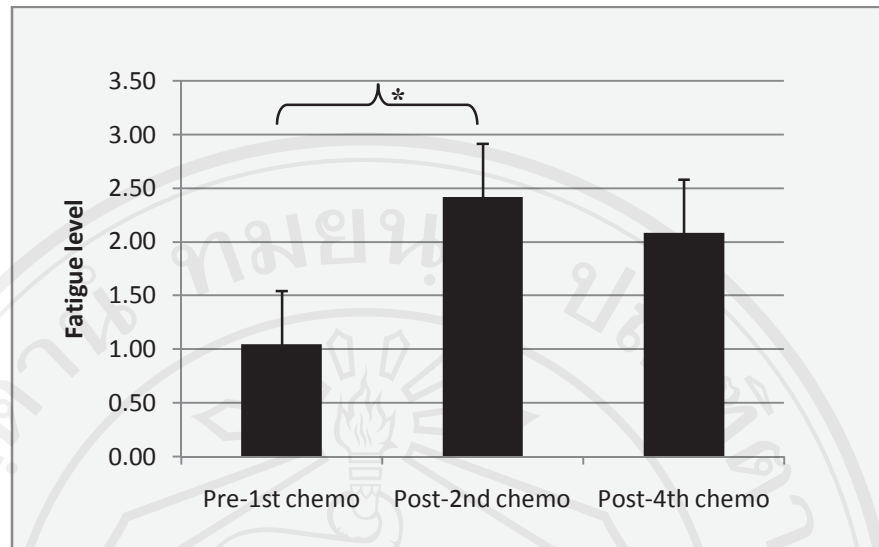| Variables	Pre-1st chemo.	Post-2nd chemo.	Post-4th chemo.
pre-dyspnea	1.42±1.44	1.67±1.13	1.08±1.00
post-dyspnea	2.67±1.15	2.21±0.84	2.58±1.08
pre-fatigue	0.67±1.05	0.88±1.15	0.58±0.79
post-fatigue	1.04±1.25	2.42±1.44[a]	2.08±1.16

Figure 4 Post-heart rate (Mean ± SD) (n=12)

Figure 5 Post-fatigue (Mean ± SD) (n=12)

3.3 Pulmonary function tests

Pulmonary function variables include $FEV_{1\%predicted}$, $FVC_{\%predicted}$, FEV_1/FVC, $FEF_{25-75\%predicted}$ and $PEFR_{\%predicted}$. There was no significant change of lung function test parameters, except $PEFR_{\%predicted}$ between 1st and 3rd assessment increased significantly, $p = 0.033$ (Table 8 and Figure 6).

Table 8 Pulmonary function tests (Mean ± SD) (n=12), [a] = significant difference from pre-1st course of chemotherapy, within group comparison using repeated measured ANOVA

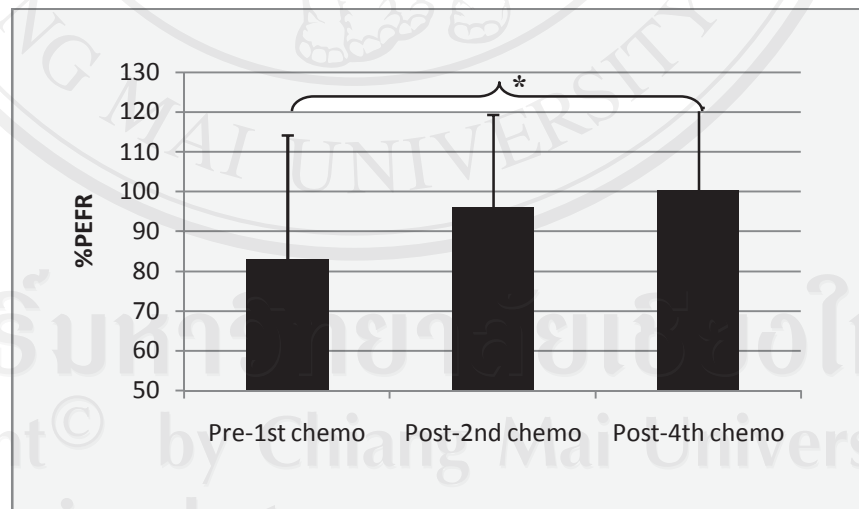| Characteristics	Pre-1st chemo.	Post-2nd chemo.	Post-4th chemo.
$FEV_{1\%predicted}$	73.08±20.40	75.25±24.90	78.25±25.10
$FVC_{\%predicted}$	82.58±22.91	88.42±23.30	91.17±22.53
FEV_1/FVC	74.08±10.08	70.08±12.55	70.50±13.21
$FEF_{25-75\%predicted}$	51.67±23.43	49.00±24.42	51.08±21.78
$PEFR_{\%predicted}$	83.08±31.03	96.17±23.15	100.25±20.84[a]

Figure 6 $PEFR_{\%predicted}$ (Mean ± SD) (n=12)

3.4 Quality of life items

The quality of life questionnaire in this study composed of two forms; the core questionnaire was QLQ-C30 and supplementary questionnaire module was LC-13. The results of studies are shown followed by questionnaire type form as below.

3.4.1 QLQ-C30

For QLQ-C30 questionnaire, there was no significant change of quality of life after final assessment. The quality of life scores are shown in Table 9.

Table 9 Quality of life items [QLQ C-30] (Median) (n=12), within group comparison using Friedman Test, post hoc test using Wilcoxon Signed Ranks Test

QoL items	Pre-1st chemo.	Post-2nd chemo.	Post-4th chemo.
Global health status	50.00	62.50	58.34
Physical functioning	86.67	80.00	80.00
Role functioning	91.67	91.67	100.00
Emotion functioning	91.67	95.84	95.84
Cognitive functioning	91.67	100.00	83.33
Social functioning	100.00	100.00	100.00
Fatigue	33.33	33.33	33.33
Nausea and vomiting	0	0	0
Pain	16.67	16.67	16.67
Dyspnea	33.33	33.33	33.33
Imsomnia	0	0	0

Table 9 (Continued)

QoL items	Pre-1st chemo.	Post-2nd chemo.	Post-4th chemo.
Appetite loss	0	33.33	0
Constipation	0	33.33	0
Diarrhea	0	0	0
Financial problem	16.67	33.33	33.33

3.4.2 LC-13

For LC-13 questionnaire, most of the variables did not significantly change, except that hair loss was worse after four courses of chemotherapy. The differences could see between 1st vs 2nd, 1st vs 3rd and 2nd vs 3rd assessed ($p = 0.003$, 0.000 and 0.005, respectively). However, some of symptoms tended to increase such as peripheral neuropathy. The other symptoms are shown in Table 10.

Table 10 Quality of life items [LC-13] (Median) (n=12), [a] = significant difference from pre-1st chemo, [b] = significant difference from pre-2nd chemo, within group comparison using Friedman Test, post hoc test using Wilcoxon Signed Ranks Test

QoL items	Pre-1st chemo.	Post-2nd chemo.	Post-4th chemo.
Dyspnea	33.33	22.22	22.22
Coughing	33.33	33.33	33.33
Haemoptysis	0	0	0
Sore mouth	0	0	0
Dysphagia	0	0	0
Peripheral neuropathy	0	33.33[a]	33.33[a]
Alopecia	0	50.00[a]	83.34[a,b]
Pain in chest	16.67	33.33	33.33
Pain in arm or shoulder	16.67	33.33	33.33
Pain in other parts	0	33.33	16.67