

Effect of Myanmar Massotherapy in the Management of Patients with *Pakshaghata* (Hemiplegia)

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Introduction

- Pakshaghata is Ayurvedic Medical Term and its signs and symptoms are similar to those of hemiplegia in Modern Medical Science (Ranade et al, 1999).
- *Pakshaghata* means loss of function of one side of the body.

- Hemiplegia is the commonest manifestation of a stroke with a paralysis (abolishment of either motor or sensory functions) effect on the face, limbs and trunk or one side of the body.
- Hemiplegia occurs in 88% of the individuals who have suffered a stroke.

• Among the survivors, approximately half will recover completely.

• The remaining half will be left with persistent major disability (Purad, 2001).

• As *pakshaghata* (hemiplegia) impairs daily activities and most of the patients are bedridden and stay in hospitals for prolong periods, it is one of the harmful diseases to the human still today.

 Also in Myanmar, *pakshaghata* represents a health and economic problem, because *pakshaghata* is most common in people above 45 years, who are the working age group of the country. In traditional medicine teaching hospital (TMTH), Mandalay, about 280 cases of *pakshaghata* were admitted to physical medicine ward in 2012 which were 24.45% of total admissions of TMTH, Mandalay.

- In physical medicine ward during the period from January to June, 2013, a total of 256 patients (148 (57.8%) men and 108 (42.2%) women) were admitted which were 18 % of total admission of TMTH.
- Based on these data, it was stated that *pakshaghata* patient percent was increasing and *pakshaghata* was first order disease treated in physical medicine ward at TMTH, Mandalay.

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- In Traditional Medicine, there are many patterns of therapeutic procedures for *pakshaghata*.
- The line of treatment includes oral medication and external application is used and followed by Myanmar massotherapy, Acupuncture, *Panchakarma* therapy alternately.

- Myanmar massotherapy is one of the therapeutic procedures in treating *pakshaghata*.
- It is the time-tested technique that has been used for the patients with *pakshaghata* to activate the damaged nervous system (Department of Physical Medicine, 2005).

- In Myanmar, Massotherapy is gaining popularity in majority of treatments in *pakshaghata* because almost patients relieve from victims of physical disability.
- By providing Myanmar massotherapy, degree of the disability of *pakshaghata* patients was reduced and also improved the quality of life of the patients.

- By doing so, their family members have less burden for caregiving.
- As stated above, it is necessary to do clinical research for these therapeutic procedures and by doing so; it can provide systematic and rational treatment for *pakshaghata* patients.

• Therefore, TMF-12, TMF-23, TMF-27, TMF-38 were used as oral medication and the effect was found out for Myanmar massotherapy on the *pakshaghata* patient in this study.

Objective

General Objective

• To study the effect of Myanmar massotherapy in the management of patients with *pakshaghata* (hemiplegia)

Specific Objectives

- To describe the background characteristics of patients with *pakshaghata* (hemiplegia)
- To compare the effect of Myanmar massotherapy in the management of patients with *pakshaghata* (hemiplegia) on day 0 with day 16, day 32 and day 48

Materials and Method

Materials

- Goniometer
- Massage couch
- Glove

- Traditional Medicine Formula 38 (Katpuradi myinthay myetke hsay)
- Traditional Medicine Formula 23 (Hsaypalekalat)
- Traditional Medicine Formula 27 (Pyilon chanthar hsay)
- Traditional Medicine Formula 12 (Setkhupalahsay)
- Traditional Medicine Formula 45 (Akyawleinhsay)

Method

- Simple random sampling method according to exclusion and inclusion criteria was carried out.
- Inclusion Criteria
 - Both sexes
 - -Between 10 days to 6 months from onset of pakshaghata
 - GCS scale 7 and above at the time of study

| Table – 1. Glasgow Coma Scale (GCS) | | |
|-------------------------------------|-------------------------|-------|
| Activity | Best response | Score |
| Eye opening | Spontaneous | 4 |
| | To speech | 3 |
| | To pain | 2 |
| | None | 1 |
| Verbal | Oriented | 5 |
| | Confused conversation | 4 |
| | Inappropriate words | 3 |
| | Incomprehensible sounds | 2 |
| | None | 1 |
| Motor response | Obeys commands | 6 |
| | Localized pain | 5 |
| | Withdraws to pain | 4 |
| | Flexion | 3 |
| | Extension | 2 |
| | None | 1 |
| Total | | 15 |
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- Exclusion Criteria
 - Patients with pregnancy
 - Patients with comorbid diseases (e.g. chronic renal failure, cirrhosis of liver, diabetic mellitus)
 - Severe hypertension (Systolic blood pressure is
 ≥ 180 mmHg and Diastolic blood pressure is ≥
 110 mmHg)

 After taking history, performing physical examinations and investigations, patients who fulfill the eligible criteria for this study were explained thoroughly about treatment procedure, possible complications and discomfort.

- The written informed consent from subjects was obtained to participate in this study.
- After having informed consent, history taking and clinical examinations were done accord to proforma.



• The drug was administered orally 2g of TMF - 38 (Katpuradi myinthay myetke hsay) with warm water in the morning, in the afternoon and evening, 2g of mixed TMF-23 (Hsaypalekalat) and TMF-27 (Pyilonchanthar hsay) in equal ratio with warm water, 2g of TMF-12 (Setkhupala hsay) with water at night during study periods.

• Massotherapy was given for 3 consecutive days and then a day was off.

- The session of therapeutic procedure lasted for 4 days and included 12 rotations during the period.
- Median pressure was used for the manipulation of Myanmar massotherapy.

- For external application, TMF-45 (Akyaw lein hsay) was used in affected side for twice (morning and evening) per day.
- The patients and their family members were thoroughly instructed by investigator about treatment procedure and how to do exercise.

- The patients were performed exercise as passive and active mobilization in the morning and evening during study.
- The data about the subjects' progress were collected once per sixteen days by pro-forma.

- The patient was asked to lie down in supine position or left or right lateral position according to the affected side.
- The pressure points such as LL-28, LL-25, LL-26, LL-24, LL-23, LL-22, LL-18, LL-19, LL-15, LL-12, LL-11, LL-10, LL-6, LL-5, LL-9, LL-8, UL-11, LL-4, UL-13, UL-10, UL-11, UL-8, UL-1, UL-6, HN-22, HN-21, Ab-1, Ab-4 and Ab-5 were applied sequentially.

- If the subject presents with facial paralysis; the pressure points as HN-10, HN-5, HN-6, HN-2, HN-3, HN-15, HN-28, HN-24, HN-25 and HN-1 were done.
- The range of time taken for each patient was 30 to 45 minutes.
- The methods of manipulation were applied pressing manipulation and kneading manipulation.

Location of Selecting Pressure Points









LL-24



LL-23

LL - 28

LL - 25

LL – 26











LL - 5

LL - 22



LL - 18

LL - 8





LL-15

LL-4



UL-13

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LL – 19



UL - 10





UL – 8





UL-1

UL-6



HN - 10



HN- 5



HN - 3



HN-2



HN-6



HN-15



HN - 24 6/20/2016



HN- 21

HN - 25





HN - 1

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Ab-4



Ab-1



Performing Massotherapy and Assessment







Data Collection and Data Analysis

• The pro-forma was used as individual's record.

- Assessment was done in every sixteen day for 4 times.
- The routine demographic data regarding the age, sex and nationality were also recorded.

- These assessments were done by investigator.
- The analysis of data was analyzed by paired t test and one way ANOVA by using SPSS statistics (version 20).

Assessment Criteria

| Grading for Gait | Score |
|------------------------------------|-------|
| Unable to stand (Bed ridden) | 5 |
| Able to stand | 4 |
| Can walk support | 3 |
| Can walk (spastic hemiplegic gait) | 2 |
| Improvement in walking capacity | 1 |

| Grading for power | Score |
|---|-------|
| No active contraction | 6 |
| Slight flicker on contraction | 5 |
| Movement with gravity eliminated | 4 |
| Movement against gravity but not against resistance | 3 |
| Movement against gravity plus resistance | 2 |
| Normal power | 1 |
| | 25 |

| Sitting from lying down | Score |
|-------------------------|-------|
| Unable | 3 |
| With support | 2 |
| Without support | 1 |

| Standing from Sitting | Score |
|-----------------------|-------|
| Unable | 3 |
| With support | 2 |
| Without support | 1 |

| Wrist Drop | Score |
|------------|-------|
| Full | 4 |
| Moderate | 3 |
| Slight | 2 |
| No | 1 |
| Foot Drop | Score |
|-----------|-------|
| Full | 4 |
| Moderate | 3 |
| Slight | 2 |
| No | 1 |

| Finger Movement | Score |
|------------------------------|-------|
| No | 5 |
| Slight | 4 |
| Unable to hold object | 3 |
| Able to hold with less power | 2 |
| Normal | 1 |

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| Abduction of Shoulder(normal range 0 - 180') | Score |
|--|-------|
| Gross limitation (0-45 [°]) | 4 |
| Moderate limitation (45-90') | 3 |
| Slight limitation (90-135 [°]) | 2 |
| No limitation | 1 |

| Flexion of Shoulder (normal range 0 - 180') | Score |
|---|-------|
| Gross limitation (0-45') | 4 |
| Moderate limitation (45-90') | 3 |
| Slight limitation (90-135') | 2 |
| No limitation | 1 |

| External rotation of Shoulder (normal range 0 - 90') | Score |
|--|-------|
| Gross limitation (0-30') | 4 |
| Moderate limitation (30-60 [°]) | 3 |
| Slight limitation (full but painful) | 2 |
| No limitation | 1 |

| Internal rotation of Shoulder (normal range 0 - 90 [°]) | Score |
|---|-------|
| Gross limitation (0-30') | 4 |
| Moderate limitation (30-60 [°]) | 3 |
| Slight limitation (full but painful) | 2 |
| No limitation | 1 |
| | 20 |

| Simple Shoulder Test | Score |
|------------------------------------|-------|
| Unable to perform the activity | 3 |
| To do the activity with difficulty | 2 |
| Able to perform without difficulty | 1 |

| Abduction of Hip joint (normal range 0 - 40 [.]) | Score |
|--|-------|
| Gross limitation (0-10 [°]) | 3 |
| Moderate limitation (10- 20 [°]) | 2 |
| No limitation | 1 |

| Adduction of Hip joint (normal range 0 - 40') | Score |
|---|-------|
| Gross limitation (0-10 [°]) | 3 |
| Moderate limitation (10-20 [°]) | 2 |
| No limitation | 1 |

| Flexion of Hip joint (normal range 0 - 120') | Score |
|--|-------|
| Gross limitation (0-30') | 4 |
| Moderate limitation (30- 60') | 3 |
| Slight limitation (60-90') | 2 |
| No limitation | 1 |

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| Extension of Hip joint(normal range 0 - 10') | Score |
|--|-------|
| Limitation | 2 |
| No limitation | 1 |

| Simple Hip Test | Score |
|------------------------------------|-------|
| Unable to perform the activity | 3 |
| To do the activity with difficulty | 2 |
| Able to perform without difficulty | 1 |

| Flexion of Elbow joint (normal range 0 |) - 140') Scor | e |
|---|----------------|----|
| Gross limitation (0-35') | 4 | |
| Moderate limitation (35-70 [°]) | 3 | |
| Slight limitation (70- 105 [°]) | 2 | |
| No limitation (105-140') | 1 | |
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| Flexion of Knee joint (normal range 0 - 150 [°]) | Score |
|--|-------|
| Gross limitation (0-40') | 4 |
| Moderate limitation (40- 80') | 3 |
| Slight limitation (80- 120 [°]) | 2 |
| No limitation (120-150') | 1 |

| Dorsiflexion of Ankle joint (normal range 0 - 15 [.]) | Score |
|---|-------|
| Gross limitation (0-5') | 3 |
| Moderate limitation (5-10 [°]) | 2 |
| No limitation (10-15 [.]) | 1 |

| Plantar-flexion of Ankle joint (normal range 0 - 45') | Score |
|---|-------|
| Gross limitation (0-15 [°]) | 3 |
| Moderate limitation (15-30') | 2 |
| No limitation (30-45') | 1 |

| Toe Movement | Score |
|--------------|-------|
| No | 3 |
| Slight | 2 |
| Normal | 1 |

Results

Changes in Mean Score of Signs and Symptoms of Patients

| Signs and Symptoms | Mean Score at Day 0 | Mean Score at Day 16 | Mean Score at Day 32 | Mean Score at Day 48 |
|-----------------------|------------------------|-------------------------|-------------------------|-------------------------|
| Grading for power | 5.66 | 4.26 | 3.06 | 2.03 |
| Grading for gait | 4.77 | 3.77 | 2.89 | 1.92 |
| Finger movement | 4.84 | 3.74 | 2.81 | 2.02 |
| Wrist drop | 2.95 | 2.53 | 1.76 | 1.47 |
| Foot drop | 2.95 | 2.53 | 1.71 | 1.39 |
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| Signs and Symptoms | Mean Score at Day 0 | Mean Score at Day 16 | Mean Score at Day 32 | Mean Score at Day 48 |
|-------------------------------------|------------------------|-------------------------|-------------------------|-------------------------|
| Abduction of shoulder joint | 3.94 | 2.94 | 2.18 | 1.56 |
| Flexion of shoulder joint | 3.94 | 2.9 | 2.21 | 1.61 |
| External rotation of shoulder joint | 3.84 | 3.32 | 2.6 | 2.16 |
| Internal rotation of shoulder joint | 3.95 | 3.58 | 3 | 2.6 |
| Flexion of hip joint | 3.85 | 2.77 | 1.98 | 1.24 |
| 6/20/2016 | | SMK | | 46 |

| Signs and Symptoms | Mean Score at Day 0 | Mean Score at Day 16 | Mean Score at Day 32 | Mean Score at Day 48 |
|-------------------------|------------------------|-------------------------|-------------------------|-------------------------|
| Sitting from lying down | 2.87 | 2.13 | 1.29 | 1.03 |
| Standing from sitting | 2.85 | 2.11 | 1.26 | 1.02 |
| Abduction of hip joint | 2.94 | 2.05 | 1.32 | 1.02 |
| Adduction of hip joint | 2.92 | 2.02 | 1.31 | 1.04 |
| Simple shoulder test | 2.97 | 2.65 | 1.92 | 1.68 |
| Simple hip test | 2.94 | 2.52 | 1.69 | 1.55 |
| 6/20/2016 | | SMK | | 47 |

| Signs and Symptoms | Mean Score at Day 0 | Mean Score at Day 16 | Mean Score at Day 32 | Mean Score at Day 48 |
|--------------------------------|------------------------|-------------------------|-------------------------|-------------------------|
| Extension of hip joint | 2 | 1.98 | 1.5 | 1.34 |
| Flexion of elbow joint | 3.89 | 3.23 | 2.42 | 1.71 |
| Flexion of knee joint | 3.89 | 3.05 | 2.18 | 1.61 |
| Dorsiflexion of ankle joint | 2.87 | 2.36 | 2.03 | 1.61 |
| Plantar flexion of ankle joint | 2.85 | 2.61 | 2.05 | 1.61 |
| Toe movement | 2.89 | 2.63 | 2.11 | 1.61 |
| 6/20/2016 | | SMK | | 48 |

Percent improvement of mean score on signs and symptoms

| Comparison of Mean Score Signs and Symptoms | | Mean | Mean Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | t | df | p value |
|--|--|--------|------------------------|-----------------------|---|--------|--------|----|------------|
| | | | | | Lower | Upper | | | |
| Pair 1 | Sign and symptom score at day 0 - Sign and symptom score at day 16 | 14.677 | 5.034 | .639 | 13.399 | 15.956 | 22.960 | 61 | .000 |
| Pair 2 | Sign and symptom score at day 0 - Sign and symptom score at day 32 | 31.290 | 6.125 | .778 | 29.735 | 32.846 | 40.223 | 61 | .000 |
| 6/20/2016 SMK | | | | | | | 49 | | |

Percent improvement of mean score on signs and symptoms

| Comparison of Mean Score Signs and Symptoms | | Mean Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | t | df | p value | |
|--|---|------------------------|-----------------------|---|--------|--------|--------|------------|------|
| | | | | | Lower | Upper | | | |
| Pair 3 | Sign and symptom score at day 0 - Sign and symptom score at day 48 | 41.758 | 7.042 | .894 | 39.970 | 43.547 | 46.689 | 61 | .000 |
| Pair 4 | Sign and symptom score at day 16 - Sign and symptom score at day 32 | 16.613 | 2.511 | .319 | 15.975 | 17.251 | 52.088 | 61 | .000 |
| 6/20/2016 SMK | | | | | | | 50 | | |

Percent improvement of mean score on signs and symptoms

| Comparison of Mean Score Signs and Symptoms | | Mean Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | t | df | p value | |
|--|---|------------------------|-----------------------|---|--------|--------|--------|------------|------|
| | | | | | Lower | Upper | | | |
| Pair 5 | Sign and symptom score at day 16 - Sign and symptom score at day 48 | 27.081 | 3.591 | .456 | 26.169 | 27.993 | 59.380 | 61 | .000 |
| Pair 6 | Sign and symptom score at day 32 - Sign and symptom score at day48 | 10.468 | 2.924 | .371 | 9.725 | 11.210 | 28.191 | 61 | .000 |
| 6/20/2016 SMK | | | | | | 51 | | | |



Discussion

 During the study period from October 2013 to August 2014, the total number of *pakshaghata* patients attending in physical medicine ward was 150.

- Of these, 70 patients who fulfilled the selection criteria were selected and 8 patients were dropped out.
- Therefore, this study included 62 patients.
- In the present study, there were 37 (59.7 %) of male and 25 (40.3 %) of female patients out of 62 patients.
- The male and female ratio of patients with *pakshaghata* was about 3:2 and male was more than that of female.

- About 6 patients (9.7%) were of 21 to 40 years, 23 patients (37.1%) were of 41 to 60 years and 33 patients (53.2%) were of > 61 years in this study.
- The mean age of patients in this study was 60.87±13.205.

- In this study, *pakshaghata* was generally the most common in age group of > 61 years and the second was 41 to 60 years (37.1%).
- In the literature, the prevalence of *pakshaghata* is high in above the age of 40 years.
- Therefore, this factor was supported by the present study.

- According to the Traditional Medicine concept, this age group is *vata dosha* predominant and *vata dosha* is the main *dosha* in the cause of *pakshaghata* patients.
- Therefore, according to this study, *pakshaghata* is the most common in age group which *vata dosha* predominant.

- According to result of CT scan, the causes of 53 (85.5 %) of subjects were cerebral infarct and 9 (14.5 %) were cerebral haemorrhage.
- Number of patients due to cerebral infarct was more than cerebral haemorrhage.

- Allen & Leuck (2000) stated that 85% of stroke was due to cerebral infarction and 15% of stroke was due to cerebral hemorrhage.
- This factor was supported by the present study.
- Regarding to the side of hemiplegia, 36 patients had left sided hemiplegia and 26 patients had right sided hemiplegia.

- Number of left sided hemiplegic patients was more than right sided hemiplegic patients.
- It found that 24 patients in male and 12 patients in female out of 36 patients of left sided hemiplegia and the male female ratio was 2:1.

- 13 patients in male and 13 patients in female out of 26 patients of right sided hemiplegia and male female ratio was equal.
- According to Traditional Medicine Concept, in right side of the body of male and left side of the body of female, *pathavi* and *apo* dominate and in left side of the body of male and right side of the body of the female, *tejo* and *vayo* dominate.

- There were 37 of male (24 patients of left side hemiplegia and 13 patients of right side hemiplegia) and 25 of female (12 patients of left side hemiplegia and 13 patients of right side hemiplegia).
- In male, left side hemiplegic patients were more than right side hemiplegic patients.

- In female, right sided hemiplegic patients were more than left sided hemiplegia.
- As *pakshaghata* was commonly occurred at the side of the body dominant of *tejo* and *vayo* in both male and female group in the study, it can be assumed that the cause is the decreased bio-energy of *tejo* and *vayo*.

 However, to give a definite conclusion about this factor is difficult due to small scale sample size of the study.

Discussion on results of overall effect of Myanmar Massotherapy

Percent improvement from day 0 to day 16 was 14.677%, percent improvement from day 0 to day 32 was 31.290 % and percent improvement from day 0 to day 48 was 41.758 %.

- Percent improvement from day 16 to day 32 was 16.613%, percent improvement from day 16 to day 48 was 27.081% and percent improvement from day 32 to day 48 was 10.468%.
- Therefore, the improvement of day 16 day 32 was more than day 32 day 48 and day 0 day 16.

 Percent improvement after 16 days treatment was 14.677% and the difference of percent improvement between day 16 - day 32 was 16.613% and day 32-day 48 was 10.468%. Based on the findings, it can be stated that there was serial improvement by providing Myanmar massotherapy in the management of *pakshaghata* patients and the treatment outcome after 48 days was moderate improved 40-60%.

 Moreover, it was found that 3 patients out of 62 patients were aphemia before treatment and these patients improved in speech after treatment but it was not stated statistically. • Therefore, further clinical studies should be carried out the effectiveness of Myanmar massotherapy on *pakshaghata* patients with aphemia.

• In the present study, it was found that 33 patients out of 62 patients (53.22%) were *pakshaghata* with facial palsy.

- The signs and symptoms of facial palsy such as facial asymmetry, absence of wrinkles on forehead, flattening of nasolabial fold, drooping of angle of the mouth, diminished salivation, drooping of eyebrow and stiffness on affected side were relieved.
- Therefore, it can be said that, Myanmar massotherapy was also effective on facial palsy.

Conclusion

- In comparison of improvement for each sign and symptom before and after treatment, all signs and symptoms were improved significantly (p = 0.000).
- Percent improvement from day 0 to day 48 was 41.758 %.
• This finding pointed out that there was serial improvement by providing Myanmar massotherapy in the management of *pakshaghata* patients and the treatment outcome after 48 days was moderate improved 40-60%. • Thus, the signs and symptoms of *pakshaghata* were significantly decreased from Day 0 to Day 48.

- The findings in the present study will give more information to traditional practitioners about the effectiveness of Myanmar massotherapy in the management of *pakshaghata*.
- Myanmar massotherapy can widely be used in the management of *pakshaghata* in both urban and rural area.

• On the basis of the present results, it can be concluded that Myanmar massotherapy was significantly effective for the treatment of *pakshaghata* and had no complication during the study period.

Suggestion

- Based on the findings, the following points were recommended for the management of *pakshaghata* with Myanmar massotherapy.
- This present study was carried out with limited sample size and also for short term. Therefore, further study should be carried out with large sample size for appropriate time.

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• In spite of the effect of Myanmar massotherapy good indicator for *pakshaghata* is patients, further studies with other different types of therapy or combined therapies such as acupuncture, panchakarma therapy should be done.

• By doing so, good treatment regimen on *pakshaghata* can be possible on future.

- Besides, the participation of patients and attendance of family members are also important in improving of the signs and symptoms of *pakshaghata* patient.
- Therefore, health education about care of patients with *pakshaghata* should be given to the family members who take care of the patients.

• According to present study, as Myanmar massotherapy was effective on aphemia and facial palsy, further clinical studies should be carried out the effectiveness of Myanmar massotherapy on *pakshaghata* patients with aphemia and facial palsy.

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THANK YOU FOR YOUR ATTENTION

