

## Efficacy of the Comprehensive Headache Clinic at the Bangkok Hospital: The First 6 Months' Report



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**Keywords:**

headache clinic, primary headache, secondary headache, migraine, HIT-6, Bangkok hospital

**OBJECTIVE:** To study the efficacy of the Comprehensive Headache Clinic.

**MATERIALS AND METHODS:** There were 302 patients who presented at the Headache clinic between July 2011 and January 2012. The efficacy of treatment was evaluated with questionnaires including Headache Impact Test™ (HIT-6™), Pain Score, and Headache frequency per week.

**RESULTS:** Of the 302 cases, 113 (37.42%) completed a four-week followup. The efficacy of treatment was analysed by using Paired T-test. The impact of headache symptoms, the severity, and the frequency of headache per week had decreased significantly from a statistical point of view. HIT-6™ Score day 0 =  $62 \pm 5.66$ , day 28 =  $52 \pm 7.15$  ( $p < 0.01$ ,  $t = 2.13$ ), Pain Score day 0 =  $7 \pm 1.92$ , day 28 =  $3 \pm 2.46$  ( $p < 0.01$ ,  $t = 1.96$ ), Headache frequency per week day 0 =  $3 \pm 2.68$ , day 28 =  $1 \pm 1.87$  ( $p < 0.01$ ,  $t = 2.58$ ).

**CONCLUSION:** Findings from the Comprehensive Headache Clinic significantly demonstrate efficacy in reducing severity, frequency, and the impact of headache symptoms on patients' daily lives.

Headache is the primary symptom that brings the patient to see the neurologist. A survey by the World Health Organization (WHO) in 2007 found that the incidence of headache affected up to 47% of the population worldwide.<sup>1</sup> These headaches not only cause annoyance but also influence the quality of life.

A survey by David B. Matchar and colleagues<sup>2</sup> found that certain types of headache, such as migraine, could cause inability to work in more than 85% of patients. If calculated in terms of direct, economic loss the sum was estimated to be as much as USD 13 billion annually, and WHO had stated that headache was a health problem affecting 1 in 20 working people in the world.<sup>3</sup>

The International Headache Society (IHS) has divided headache into three groups, namely, 1) Primary headaches, 2) Secondary headaches and 3) Cranial neuralgias, central and primary facial pain, and other headaches.<sup>4</sup>

Primary headaches are caused by abnormalities of the brain and nervous system itself. No abnormality can be detected by radiological and laboratory tests. Examples of primary headaches include migraine headaches, tension type headache, and trigeminal autonomic cephalalgias (TACs) such as cluster headache, etc.

Secondary headaches are headaches caused by internal or external conditions such as brain tumor, cerebral hemorrhage, cerebral venous thrombosis, head injury, sinusitis, eye disorders, abnormalities of the teeth or temporomandibular joints, infectious diseases, etc. It is necessary for this group to have additional investigations such as Computerized Tomography (CT), Magnetic Resonance Imaging (MRI), and blood tests.

Cranial neuralgias, central and primary facial pain, and other headaches are from other causes. For example, headaches caused by abnormalities of the 5<sup>th</sup> or 9<sup>th</sup> cranial nerves or an inflammation of occipital nerves, etc.

Approximately 20% of the patients who visited the Neuroscience Center at Bangkok Hospital presented headaches as a primary symptom. Therefore, the Comprehensive Headache Clinic has been established and initiated a multidisciplinary team made up of headache specialists, nurses, rehabilitation doctors, physical therapists, clinical psychologists, and medical acupuncturists who can provide comprehensive assessment, treatment and headache education in accordance with international standards.

The aims of the Comprehensive Headache Clinic are to reduce the frequency and severity of the symptoms, offer effective treatments according to international standards, decrease the overuse of pain medications, enhance quality of life, and educate patients and their families so that they are able to take care of themselves and manage their headaches appropriately.<sup>5</sup>

## Treatment guidelines in the Comprehensive Headache Clinic

### Pharmacologic treatment

#### Acute Treatment

1. Acute pain medications are administered intravenously or orally as indicated, according to the standard treatment guidelines from the American Academy of Neurology and European Federation of Neurology Society.<sup>6-10</sup>
2. Occipital nerve block, Trigger point injection, and/or Peripheral nerve block are performed as indicated.<sup>11,12</sup>

#### Prophylactic Treatment

1. Prophylaxis medications are administered as indicated, according to standard treatment guidelines from the American Academy of Neurology and European Federation of Neurology Society.<sup>6-10</sup>
2. Occipital nerve block or Botulinum toxin injection are performed as indicated.<sup>12,13</sup>

### Non-pharmacologic treatments<sup>14,15</sup>

1. Acupuncture
2. Rehabilitation
3. Biofeedback
4. Cognitive behavioral therapy, Relaxation training, Depression and anxiety screening.

## Materials and Methods

Headache Impact Test<sup>TM</sup> (HIT-6<sup>TM</sup>), the pain score, and the headache frequency per week were used to evaluate the progression of clinical and therapeutic responses in each patient.

### Headache Impact Test<sup>TM</sup> (HIT-6<sup>TM</sup>) Version 1.1<sup>15</sup>

The test was developed to help patients to communicate their feelings about headache especially in terms of the severity of symptoms and the impact on their daily life. There are 6 questions for patients to answer according to how they feel and the scores will be calculated. The symptoms of headache are divided into 3 levels: Mild score of 50-55 (the headache had a minimum impact on daily life and did not require medical attention), Moderate score of 56-59 (the headache had a moderate impact on daily life and required medical attention), Severe score of  $\geq 60$  (the headache had severe impact on daily life and required urgent treatment).<sup>16</sup> HIT-6<sup>TM</sup> record form and interpretations are shown in Table 1.

### Pain Score

The pain assessment was graded on a numerical rating scale (NRS) with a score of 0-10. There were 4 levels starting from 0 = no pain, 1-3 = mild pain, 4-6 = moderate pain, and 7-10 = severe pain.<sup>17</sup>

### Headache frequency per week

The number of headache attacks per week was asked.

### Statistical analysis

Patient characteristics were described as absolute numbers, percentage, mean, and standard deviation (SD).

Inferential statistics was used with Paired sample T-test to determine the headache scores before treatment (Day 0) versus after treatment (Day 28).

**HIT-6™**  
(VERSION 1.1)

This questionnaire was designed to help you describe and communicate the way you feel and what you cannot do because of headaches.

To complete, please circle one answer for each question.



<b>1</b>	<b>When you have headaches, how often is the pain severe?</b>				
	Never	Rarely	Sometimes	Very often	Always
<b>2</b>	<b>How often do headaches limit your ability to do usual daily activities including household work, work, school, or social activities?</b>				
	Never	Rarely	Sometimes	Very often	Always
<b>3</b>	<b>When you have a headache, how often do you wish you could lie down?</b>				
	Never	Rarely	Sometimes	Very often	Always
<b>4</b>	<b>In the past 4 weeks, how often have you felt too tired to do work or daily activities because of your headaches?</b>				
	Never	Rarely	Sometimes	Very often	Always
<b>5</b>	<b>In the past 4 weeks, how often have you felt fed up or irritated because of your headaches?</b>				
	Never	Rarely	Sometimes	Very often	Always
<b>6</b>	<b>In the past 4 weeks, how often did headaches limit your ability to concentrate on work or daily activities?</b>				
	Never	Rarely	Sometimes	Very often	Always
	<b>COLUMN 1</b> (6 points each)	<b>COLUMN 2</b> (8 points each)	<b>COLUMN 3</b> (10 points each)	<b>COLUMN 4</b> (11 points each)	<b>COLUMN 5</b> (13 points each)

To score, add points for answers in each column.

Please share your HIT-6 results with your doctor.

**Total Score**

Higher scores indicate greater impact on your life.

Score range is 36-78.

Figure 1: The Headache Impact Test™(HIT-6™) form.

Table 1: The Headache Impact Test™(HIT-6™) interpretation.

Score	Level	Mean
50-55	Mild	Your headaches seem to be having some impact on your life. Your headaches should not make you miss time from family, work, school, or social activities.
56-59	Moderate	Your headaches are having a substantial impact on your life. As a result you may be experiencing severe pain and other symptoms, causing you to miss some time from family, work, school, or social activities.
≥ 60	Severe	Your headaches are having a very severe impact on your life. You may be experiencing disabling pain and other symptoms that are more severe than those of other headache sufferers.

**Table 2:** Patient characteristics and Headache subtypes

Details	Thai (n = 237)	Foreign (n = 65)	Total (n = 302)
Sex			
Male	59 (19.54%)	28 (9.27%)	87 (28.81%)
Female	178 (58.94%)	37 (12.25%)	215 (71.19%)
Age (years)			
15-35	132 (43.71%)	26 (8.61%)	158 (52.32%)
36-55	84 (27.81%)	25 (8.28%)	109 (36.09%)
56-75	18 (5.96%)	12 (3.98%)	30 (9.94%)
76-95	3 (0.99%)	2 (0.66%)	5 (1.65%)
<b>Average age (Mean ± SD)</b>	<b>37.15 ± 13.12</b>	<b>40.53 ± 14.21</b>	<b>37.82 ± 13.36</b>
Headache classifications			
Primary Headache	185 (61.26%)	46 (15.23%)	231 (76.49%)
Secondary Headache	29 (9.59%)	16 (5.30%)	45 (14.89%)
Cranial Neuralgia, Central and Primary Facial Pain and Other Headaches	23 (7.62%)	3 (1.00%)	26 (8.62%)

## Results

Since the opening of the Comprehensive Headache Clinic at Bangkok Hospital on July 2011 there were 302 patients with headaches that were treated in the clinic during the first 6 months (until January 2012).

### Population

Of the 302 patients, 237 (78.5%) were Thai, 65 (21.52%) were overseas visitors, 87 (28.81%) being male and 215 (71.19%) being female. Age range between 15 and 35 years in 52.32% and over 35 years old in 47.68%.

Headaches were classified, according to the International Headache Society (IHS), into:

Primary headache in 229 cases (75.83%): migraine headache 168 cases (73.36%), tension type headache 42 cases (18.34%), other primary headaches 16 cases (6.99%), and cluster headache 3 cases (1.31%).

Secondary headache in 47 cases (15.56%): cervicogenic headache 30 cases (63.83%), medication overuse headache 11 cases (23.40%), and post-traumatic headache 3 cases (6.38%) and other secondary headaches 3 cases (6.38%).

Cranial Neuralgia, central and primary facial pain and other headache accounted for 26 cases (8.61%): occipital neuralgia 8 cases (30.77%), other primary facial pain 7 cases (26.92%), other cranial neuralgia 6 cases (23.08%), and trigeminal neuralgia 5 cases (19.23%). Patient characteristics and headache subtypes were shown in Table 2.

From 302 patients, there were 113 cases (37.42%) who completed a four-week followup period. Those that did not come for followup include 111 cases (36.75%) with mild headache that did not require any further treatment; 63 cases (20.86%) did not keep their appointment and when we called to check how they were, they said that their headaches had improved a lot; 15 cases (4.97%) continued their treatment abroad.

Those with completed a four-week followup were asked to answer three evaluation forms. Comparisons between the first day of treatment (Day 0) and the last day after 4 weeks of treatment, using the Paired T-test, showed a statistically significant decrease in the impact of headache, the severity of headache, and the frequency of headache per week. HIT-6™ Score day 0 = 62±5.66, day 28 = 52±7.15 ( $p < 0.01$ ,  $t = 2.13$ ), Pain Score day 0 = 7±1.92, day 28 = 3±2.46 ( $p < 0.01$ ,  $t = 1.96$ ), Headache frequency per week day 0 = 3±2.68, day 28 = 1±1.87 ( $p < 0.01$ ,  $t = 2.58$ ) (Table 3 and Figure 2).

### Discussion

From our Comprehensive Headache Clinic, on the first day (Day 0) patients had an average headache score (HIT-6™) of 62 (severe headache impact), average pain score of 7 (severe pain score) and the average headache frequency score was 3 times per week (high frequency). After the 4 weeks treatment of headache, we found that the severity of headache had improved to mild degree and the average headache score (HIT-6™) decreased to 52 (mild headache impact), the average pain score was reduced to 3 (mild pain score), and the average of

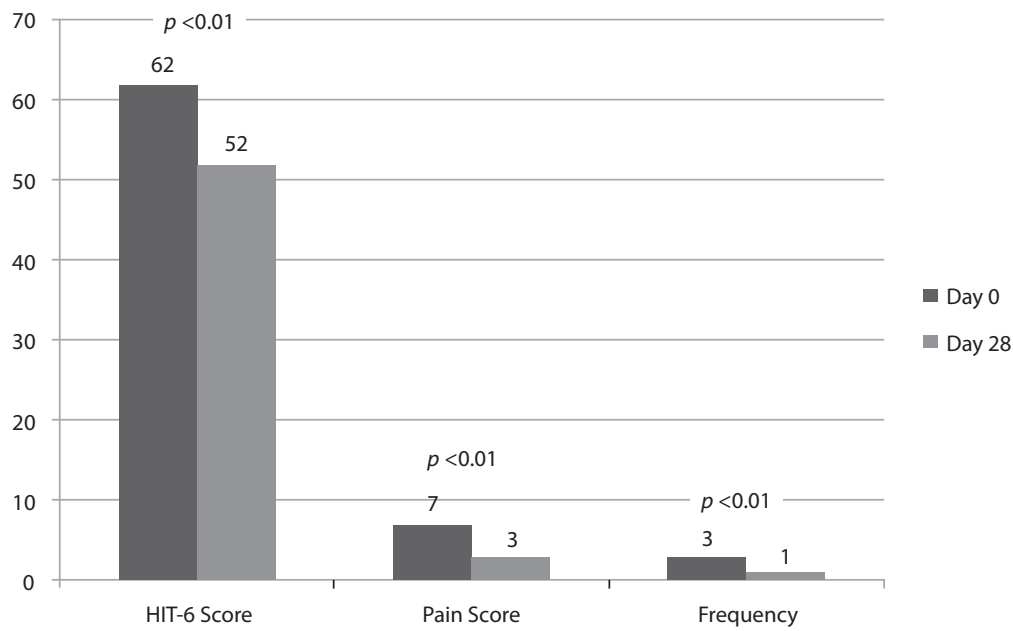


Figure 2: Graph shows the comparison of the headache score on Day 0 vs. Day 28

Table 3: Comparison of headache scores on Day 0 vs. Day 28

Parameter	Mean	SD	t	p-value
HIT-6™ Score				
Day 0	62	5.66	2.13	< 0.01
Day 28	52	7.15		
Pain Score				
Day 0	7	1.92	1.96	< 0.01
Day 28	3	2.46		
Frequency				
Day 0	3	2.68	2.58	< 0.01
Day 28	1	1.87		

headache frequency was reduced to once per week (low frequency). As a result, these patients had a significant increase in their quality of life due to reduced suffering from headaches.

Using HIT-6™ score, pain score, and headache frequency per week for treatment evaluation helps patients to communicate more effectively with their physicians. As a result, treatment can be given more effectively and patients can better notice the progression of treatment.

Sauro KM, et al.<sup>18</sup> showed in their trial of the Calgary Headache Assessment and Management Program (CHAMP) that the multidisciplinary team were able to significantly reduce the HIT-6™ score from 63.6 to 58.2 ( $p < 0.001$ ) in three months' duration.

We propose that by forming a similar Comprehensive Headache Clinic with a multidisciplinary team helps us to improve assessment and treatment of patients with a holistic approach which will accentuate the effectiveness of treatment.

### Conclusion

A multidisciplinary team in the Comprehensive Headache Clinic can improve the patient's quality of life by significantly reducing the severity of headache, the frequency, and the impact of headache symptoms. Headache scores will help the patient and physician to reach a common understanding.

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