Kampo Medicine - Current Research

Efficacy of "Goreisan" for Headache

An epidemiological research study on the relationship between chronic headache and atmospheric depression

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"*Goreisan*" has been a popular Kampo prescription in its 1,800 year history. This medicine improves abnormal water metabolism and is often used for this kind of disorder. Source: "Shang han" cold induced disease. This *goreisan* has many applications and is documented in research papers. (Refer to *Reference.) One of the most interesting studies on headache is presented below[1].

1) Haimoto H: Observations pertaining to the correlation between the clinical epidemiology of chronic headache and migratory cyclones (case-control study of patients for whom the treatment with *goreisan* had been effective or ineffective) Φυτο Vol.1 No.3 p4-9, 1998

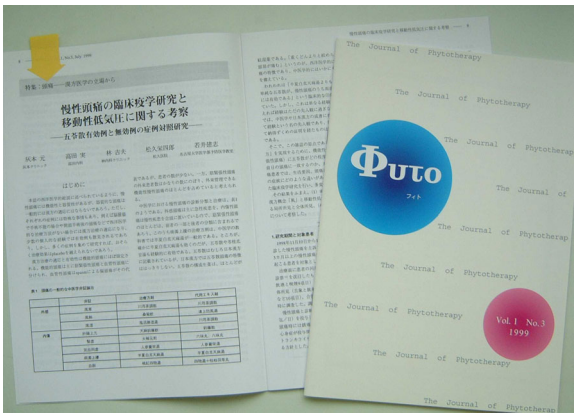

Figure 1: Φυτο Vol.1 No.3 1998

Previous studies and history of the use of "*Goreisan*" for headache

The use of *goreisan* on headaches is not popular in China. The use of this *goreisan* in Japan was developed in recent years and is documented in research and case studies. Its first use began approximately 200 years ago, documented in a thin handwritten notebook by a doctor named Kinzan Murai ("*Goreisan* is Effective on Serious Headache"[2]. Dr. Keisetsu Otsuka (1900-1982) who was one of the first persons to revive Kampo medicine in recent years, found this notebook at a secondhand bookstore. Based on the writing, he applied it for a refractory trigeminal neuralgia, made dramatic progress, and reported the results in technical journals[3].

Dr. Doumei Yakazu, who read this paper, thought that the prescription should be effective for headache, as written in Murai's note, and applied it to patients suffering from headache. Marked effects were obtained when patients with migraine at his clinic were treated with this preparation[4]. Based on these experiences, he later treated other migraine patients with this preparation and achieved very good results[5]. Considering the possibility that this may also be effective for other forms of headache, patients visiting the clinic were subsequently treated with this preparation as the prescription of first choice. Many of these case reports were published in the latter half of the 1950s and in the 1960s in the "Journal of Kampo Medicine".

Based on the results he found, he engaged in further research. From careful and detailed physical examination, he attempted to specify the types of headache for which the prescription would be effective. However, even he, who studied for several decades, could not identify definitive patterns in its use. His reports inspired other doctors to conduct research, and as a result many excellent papers were written, but none were able to definitively resolve the conditions for which it would be effective. The resolution of this problem had to wait until the revolutionary discovery by Dr. Haimoto almost 40 years after the publication of Yakazu.

The direction of smoke from a chimney pipe inspired his research

Figure 2 and 3 depict scenery from Dr. Haimoto's upstairs window. This shows the chimney of a paper mill (as seen in the left picture, from right to left) from which he deduced, that when the wind blows from west to east, it will not rain that day. On the contrary, it rains when the wind is from the east. This phenomenon is known by many women that live near this place who judge by the direction of the smoke whether they can do their laundry that day. The discussion of this phenomenon will become apparent as the discussion of headache and atmospheric pressure unfolds below.

The Paper Mill, Its Chimney, and the Flow of the Smoke

Figure 2

Figure 3

In his everyday attendance, Dr. Haimoto noticed that on days when the smoke flows from east to west, headache patients increased, and also that much of the headache can be lightened by taking *goreisan*. Therefore, he hypothesized that headaches caused by gradually lowering air pressure can be lightened by taking *goreisan*. In order to establish this hypothesis, he started research with his fellow doctors. The first step was to have the patients keep a record on the headache calendar (Table 1). It can be confirmed that the patients realized headache before the weather changes for the worse.

	SUN	MON	TUE	WED	THU	FRI	SAT
DATE	29 NOV.	30 NOV.	1 DEC.	2 DEC.	3 DEC.	4 DEC.	5 DEC.
HEADACHE	○		○	○	? ?	○	
WEATHER	FINE	CLOUDY ↓ FINE	FINE	FINE ↓ RAIN	RAIN ↓ CLOUDY	CLOUDY	RAIN

Table 1: Headache Calendar

Subject of the investigation

This study investigated patients with chronic headache as their chief complaint who visited four related medical facilities between October 10, 1988 and August 15, 1999. Among these patients, those complaining of headaches that lasted more than three months and occurred with a frequency of more than once per week served as the subjects for this study.

A consent was obtained from the patients prior to treatment. Eighty-six items pertaining to daily life and thier symptoms, 26 items pertaining to physical findings as well as other items; a total of 140 items, were examined.

The 56 patients examined in the study included 14 men and 42 women. Useable data concerning the effects was possible in a total of 42 patients, 9 men and 33 women. They were treated with *goreisan* for a period varying between 2 and 4 weeks.

A breakdown of the diseases observed included 42 patients with tension headache, 1 patient with mixed headache and 13 patients without specification (cases in which a western medical diagnosis was difficult). Coexistent diseases were observed in 40 patients (including 18 patients with neuroses, 7 with depressive moods, 9 with psychosomatic diseases, 3 with autonomic dysregulation and 3 with insomnia). Thirteen patients had cardiovascular diseases (including 11 patients with hypertension and 1 patient

with angina pectoris). Other symptoms were detected: 5 patients with dizziness, 4 patients with metabolic disorders (including 2 diabetics and 2 patients with hyperlipemia), 3 patients with skin diseases (2 patients with atopic dermatitis), 2 patients with musculoskeletal diseases, 1 patient with a gynecologic disease, and 1 patient with a hematologic disease.

Research methods and results

The physicians participating in this study instructed patients who were diagnosed with chronic headache to keep a headache calendar including frequency of their headache and observe changes in the correlation between the weather and headache as well as treatment with *goreisan*. These patients were treated with 5.0 g - 7.5 g/day of *goreisan* extract and the effects evaluated after a period ranging from 2 to 4 weeks. An almost complete alleviation of the headache was defined as "markedly effective", a reduction in the frequency of the headaches to less than half of its pretreatment incidence as "effective" and failure to fall below half of the pre-treatment incidence as "ineffective".

These results were then subjected to a statistical analysis (multivariate analysis) in order to deduce the relevant conclusions.

The following results were obtained:

Examination of the factors with a significant correlation to the effectiveness of *goreisan* for the treatment of chronic headache showed that among the 42 patients treated with this powder, the results were evaluated as "effective" in 21 patients (50.0%). Next the patients were divided into a group effectively treated with this powder and an ineffective group. The results for which a statistical analysis of the correlation between the various factors and efficacy showed a significant odds ratio are listed in Table 2.

The strongest positive correlation with the effectiveness of *goreisan* was found for "Symptoms become worse on the day before it starts raining". Here an odds ratio of 16.3 and a risk of 0.25% were statistically significant. In other words, this powder is 16 times more likely to be effective in patients who stated that "Symptoms become worse on the day before it starts raining" than in patients responding "they do not". The *Goreisan* was effective in 19 (90.5%) out of the 21 patients in whom symptoms actually exacerbated on the day before it started raining.

Item	*Goreisan* effective	*Goreisan* ineffective	p	Odds ratio
Symptoms become worse on the day before it starts raining (YES/NO)	(19/2)	(2/19)	0.0025	16.3
Easily catch cold (YES/NO)	(7/14)	(14/7)	0.045	0.26
Hands are cold (YES/NO)	(7/14)	(14/7)	0.035	0.24
Palpitation (YES/NO)	(4/17)	(10/11)	0.039	0.22
Feet are cold (YES/NO)	(13/8)	(18/3)	0.0064	0.22
Strengh of the pulse (weak/normal)	(3/15)	(15/6)	0.054	0.20
Shortness of breath (YES/NO)	(2/19)	(7/14)	0.053	0.17
Dizziness (YES/NO)	(8/13)	(15/6)	0.017	0.16
Chest dyscomfort (YES/NO)	(1/20)	(6/15)	0.073	0.13
Menstrual blood loss (profuse+scant/intermediate)	(1/11)	(4/5)	0.083	0.12
Color of tounge fur (yellow+dark yellow+burnt+gray+black+gree+other/white)	(1/20)	(6/15)	0.054	0.11
Orthostatic syncope (YES/NO)	(7/14)	(17/4)	0.0031	0.10
Strong anxiety (YES/NO)	(9/12)	(18/3)	0.0055	0.093
Thumb-sized blood clots in the menstrual blood (YES/NO)	(4/8)	(8/1)	0.024	0.052

Table 2: Results and Odds Ratio

This indicated that *goreisan* is effective in patients in whom headaches develop on the day before it starts raining, much higher than in people in whom this is not the case. Regarding the correlation with the weather, the results showed clearly that the administration of *goreisan* for headaches developing when atomospheric pressure drops gradually, is effective in more than 90% of the cases.

The effectiveness of *goreisan* for patients in whom the headaches exacerbate on days preceding rain is conspicuous from this table, but examination items reveal other interesting results. Also, apart from whether *goreisan* is effective or not, examination of the signs with significant correlations to headaches on days before it starts to rain, clearly showed, for example, that the consumption of coffee or raw vegetables reduced the likelihood of the development of headaches on days before rain. This study included many other fascinating data. The reader is encouraged to review the original literature.

Haimoto et al. have deduced the following conclusions from this study.

1) *Goreisan* has a probability of 90% to be effective for headaches which occur with a frequency of 1-2 times per week with an onset days before it starts raining. It is not effective for headaches that occur daily.
2) Factors that decrease the likelihood of *goreisan* being effective include orthostatic syncopes, strong anxiety, dizziness (occurring daily), cold feet, cold hands and palpitations. These symptoms suggest a correlation to psychosomatic headache.

Reflections on the results

This study showed that *goreisan* is effective for some forms of headache triggered on days preceding rain with comparatively sudden drops in atomospheric pressure. Haimoto interpreted this with a correlation with migratory cyclones. Japan's climate has four distinct seasons and migratory cyclones are likely to pass over Japan in spring and autumn. Headache forms that are indications for *goreisan* are also likely to occur during these seasons. According to observations made by researchers, a drop in atmospheric pressure from 1013 hPa to 1000-995 hPa triggers the onset of these headaches.

At this point, the headaches in question are mostly tension headaches and not pulsating headaches (migraine). Occasionally mixed headache forms are observed. Yet, as Haimoto et al. have pointed out, *goreisan* is not only effective for headaches triggered by a drop in atmospheric pressure. It may also be effective for other forms of headache as well. For example, among the case reports published by many researchers like Yakazu, and other several have also described migraine, headaches, indicating they are suitable for the effects of this preparation.

Another factor needs to be taken into consideration. *Goreisan* is not the only preparation effective for headaches triggered by a drop in atmospheric pressure. Our experiences have clearly shown that *ryokeijutsukanto* or *hangebyakujutsutemmato* may under certain circumstances be effective.

In the former case, from a point of view of Traditional Chinese Medicine (TCM), an anomaly in water metabolism has been considered responsible, so that the three crude drugs also found in *goreisan*, namely *Cinnamomi* Cortex, *Porea* and *Atractylodis* Rhizoma probably play an important role. In the latter case, based on TCM etiologic concepts, phlegm is considered the relevant causative factor. These results suggest that similar headaches may not only be triggered by stagnant water and moisture, but also by phlegm.

Thus, there is not only one preparation for the treatment of headaches induced by a drop in atmospheric pressure, although there are as yet no clear indications as to which of the above described prescriptions should be used. Nevertheless, the research of Haimoto et al. is relevant, because it indicates efficacy of the treatment with *goreisan* in these cases.

Possible future applications

This report suggests the possibility of using *goreisan* for the treatment of various diseases triggered by changes in atmospheric pressure, in particular, drops in atmospheric pressure.

For example, headache, diarrhea or similar physical changes developing when mountaineering people reach an altitude of about 1,000-m above ground level in a comparatively short time; the obstruction of the auditory tube and ear pain due to edema developing in passengers of ascending planes after take-off; Caisson disease developing in divers or surfacing submariners, and similar conditions, may in some cases, be considered indications for *goreisan*.

Currently, some physicians who learned of this research, install a barometer in their consultation rooms in order to establish the diagnosis. Under certain circumstances they wear wrist watches with a barometer and constantly pay attention to changes in atmospheric pressure.

*Reference

Composition, dosage and indication of *goreisan* in Japan today.

Composition	Indications
Alismatis Tuber 5.0-6.0g	1. Headache, Migraine
Poria 3.0-4.5g	2. Acute gastroenteritis
Atractylodis Rhizoma 3.0-4.5g	3. Chronic subdural hematoma
Polyporus 3.0-4.5g	4. Cerebral edema
Cinnamomi Cortex 2.0-3.0g	5. Acute stage of cerebral infarction
	6. Edema generally
	7. Hydrocelle testis
	8. Ear pain during airplane flight

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2) Murai K: Clinical note of Dainen Murai, end of the 18th or beginning of the 19th century
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6) Ogawa A: Headache and *goreisan*, Journal of Kampo Medicine 14 (9): 16-21, 1967