

# Rehabilitation of Paralysis Due to Apoplexy

*Written by Pan Chang*



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**FOREIGN LANGUAGES PRESS BEIJING**

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## FOREWORD

Apoplexy, known as wind stroke in traditional Chinese medicine (TCM), is usually seen in hypertension, cerebral hemorrhage and cerebral infarction as defined in modern medicine. At present, about a third of the provinces and municipalities in China have entered the era of an ageing society. There are about two million aged people who suffer from wind stroke each year in China, among whom about 70% have various sequelae. With the increase of the ageing population and the development of medical science, the morbidity and survival rate of apoplexy and the rate of its resultant after paralysis occurs have also increased.

Paralysis due to wind stroke usually means that patients are unable to manage their own life. Though various factors are responsible for patient debility, such as constitutional factors and pathological conditions, correct nursing and rehabilitative treatment are the key factors involved in handling it. It is evident that correct nursing and rehabilitative treatment can greatly reduce the sequelae rate, prevent spasms and rigidity of the joints, increase the rehabilitative rate of bodily functions and improve the quality of survival.

It is certain that to provide correct nursing methods and knowledge of rehabilitative treatment for patients with paralysis due to wind stroke is the duty of every medical and nursing worker. For this purpose, the author has written this book based on over ten years of clinical treatment and research into paralysis due to wind stroke. Since medical terms and the body positions are difficult for general readers to understand, this book is illustrated in detail with necessary explanations for readers' convenience. In order to make it easy for readers to understand the directions and range of the physiological movement of the main joints, so as to correctly do functional exercises, Chapter 2 is devoted to the illustration and explanation of the movement of each main joint in the human body.

The book introduces different nursing and rehabilitative therapeutic methods according to the acute stage, convalescence and sequelae, making it more convenient for readers to study and manipulate.

The rehabilitative treatment usually begins three to seven days after the pathological conditions become stable. Clinical practice shows that correct relaxation and slow separation of each joint and independent active functional exercises when the patient is conscious and free from remarkable inhibition will not aggravate the pathological conditions. Even cerebral hemorrhage will not recur. For patients with hypertension and general vascular sclerosis (including coronary heart disease), critical conditions also will not appear if the patients do not withhold the breath and make great efforts in functional exercises.

Clinical practice finds that correct rehabilitative treatment is a course lasting up to three months. It is generally believed that the restoration of neural function terminates within six months and it is difficult to restore after half a year. So, early rehabilitative treatment can promote blood circulation, propel venous recovery, promote metabolism, and reduce local damage in the brain. Besides, the formation of collateral circulation in the brain will improve cerebral ischemia and promote the rehabilitation of the limbs.

To restore the functions of the affected limbs earlier, patients must correctly understand and perform the rehabilitative therapeutic methods. The following points should be borne in mind.

1. Correctly understand the terms used in this book, such as bending the shoulder joint, extending the elbow joint, dorsal bending of the wrist joint, palmar bending of the wrist joint, dorsal bending of the ankle joint, metatarsal bending of the ankle joint, etc. Besides, upward (anterior, lateral) turning of the palm means a supine position of the forearm and vice versa.
2. Familiarity with the muscle groups. Appendix 1 in this book covers the muscle groups involved in the movement of the main joints. Readers, and medical and nursing workers engaging in rehabilitative medicine, should become familiar with them, especially the starting and ending points of each skeletal muscle. Such a familiarity is helpful for correct and systematic functional training or selection of sites for performing treatment.
3. Moderate exertion in doing exercise: no matter if the exercise is done by the patient actively, or passively with the help of doctors or relatives, the effort used and the range selected should be moderate, avoiding making efforts to enable each joint to reach the normal physiological movement range; otherwise, the joint pains can easily occur. Besides, patients with paralysis due to wind stroke usually experience sensory disturbance and bradyesthesia, so that any exercise involving great exertion will cause subcutaneous ecchymoma. In the early stages, patients are forbidden to do exercises with heavy loads, because it is easy to cause dislocation of the joints.
4. Correct location of the acupoints. This is a key to the curative effect of rehabilitative treatment. The correct location of each acupoint is expounded in the book. If readers are still unclear, please refer to the commonly used bone measurement and simple ways to locate acupoints in Appendix 2 in this book or other specialized works.

On the whole, the rehabilitation process of the patients with paralysis due to wind stroke is a process of substitute functional training and the restoration of the injured nerves. This means that the patients study to develop new functions to substitute for the lost ones, and restore the formal functions of their body through restoration and reconstruction of the functions of the nerves.

In writing this book, I am indebted to Mr. Xu Lin, who has drawn all the illustrations, and Mr. Li Yuqin, who has supported and cooperated with me.

I would also like to acknowledge my relatives, who have helped me heart and soul in my study of medicine.

There must be errors in this book due to my limited knowledge. Criticism and advice are welcome and will be adopted in the next edition.

Pan Chang

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## *Chapter 1*

# GENERAL INTRODUCTION

Wind stroke, a term used in traditional Chinese medicine (TCM), is a kind of acute cerebrovascular disease marked by sudden coma accompanied by hemiplegia, distortion of the face, dysphasia or sudden hemiplegia without fainting. Since its occurrence is sudden, involving rapid changes, and violent in development, similar to the way the wind blows in nature, so it is called wind stroke in TCM.

Wind stroke is a disease due to disturbance of the blood circulation in the brain. Usually wind stroke is divided into two categories according to the cause, pathogenesis and manifestations. The first category is called hemorrhagic wind stroke or hemorrhagic cerebrovascular disease, including cerebral hemorrhage and subarachnoid hemorrhage. The second category is called ischemic wind stroke or ischemic cerebrovascular disease, including temporal cerebral ischemic seizure and cerebral infarction (including cerebral thrombosis and cerebral embolism).

### 1. DIFFERENTIATION OF DISEASE

Under normal conditions, the blood is transported to the brain through the cerebral vessels to provide necessary nutrients for the brain tissues (nerve cells) to maintain the physiological activities of the brain. If there is cerebral arteriosclerosis that makes the vascular wall brittle and narrow, or leads to dissecting aneurysm, it may cause the breaking or stagnation of the vessels due to various factors such as excitation, anxiety, overexertion and hypotension (or hypertension), consequently leading to disturbance in blood circulation, ischemia in part of the cerebral tissues and edema, which further result in dysfunction of the cerebral nerves and various manifestations of wind stroke.

#### **(1) Cerebral hemorrhage**

Cerebral hemorrhage refers to the breaking of the vessels in the cortex of the brain and extravasation of the blood. There are symptoms of headache, vomiting, coma and hemiplegia in most patients. Cerebral hemorrhage is the most serious type of wind stroke. The clinical manifestations vary due to differences in the regions subject to the hemorrhage.

##### ① Capsuloganglionic hemorrhage

It is usually marked by paralysis of the opposite side limb, sensory disturbance in half of the body and hemianopsia.

##### ② Thalamus hemorrhage

Scanty thalamus hemorrhage on one side may produce symptoms of light paralysis of the



limbs, sensory disturbance of one side of the body and obvious disturbance of proprioceptive sense due to a topoanesthesia-like inability to tell which finger is touched. Profuse thalamus hemorrhage on both sides is usually marked by frequent spurting vomiting of a coffee-like substance, polyuria, glucose in the urine, paralysis of the four limbs, and both eyes staring toward the tip of the nose. The prognosis is usually unfavorable.

③ Cerebrolobar hemorrhage

The usual manifestations are headache and vomiting. Frontal lobar hemorrhage is usually accompanied with restlessness, anxiety, paralysis of the opposite side limbs and anandia. Parietal lobar hemorrhage is usually accompanied with sensory disturbance of the opposite side. Temporal lobar hemorrhage is usually accompanied with restlessness, anxiety and sensory aphasia. Occipital lobar hemorrhage is usually accompanied with hemianopsia. The prognosis is usually favorable.

④ Pontine hemorrhage

The brain stem is a region susceptible to hemorrhage. The usual manifestations are paralysis of one side of the face and limbs on the opposite side. Profuse hemorrhage usually causes paralysis of the four limbs, miosis, high fever, coma, even convulsion and irregular breathing. The prognosis is usually unfavorable.

⑤ Cerebellar hemorrhage

Scanty hemorrhage is often marked by dizziness, sharp headache, frequent vomiting, unclear speech and unstable walking. Profuse hemorrhage usually leads to sudden death.

⑥ Ventricular hemorrhage

Primary ventricular hemorrhage is seldom seen. Secondary ventricular hemorrhage is usually marked by vomiting, polyhydrosis, cyanotic coloration or paleness of the skin. One or two hours after the onset, unconsciousness occurs along with high fever, paralysis of the four limbs or stiff convulsions, unstable blood pressure and irregular breathing. The prognosis is unfavorable.

(2) **Subarachnoid hemorrhage**

This is an independent disease of hemorrhagic wind stroke. Primary subarachnoid hemorrhage is caused by the direct flow of blood into the subarachnoid cavity from the surface of the brain and the broken vessels in the bottom of the brain. Secondary subarachnoid hemorrhage is cerebral hemorrhage caused by the flow of blood into the subarachnoid cavity or ventricles of the brain through the cerebral tissues. Generally speaking, an occurrence before the age of 30 is usually caused by deformity of the vessels; occurrence after 40 is usually due to dissecting aneurysm; occurrence after 50 often results from hypertension and breaking of the vessels due to arteriosclerosis. The usual clinical manifestations are acute headache, vomiting, and stiffness of the neck, which may be accompanied by anxiety, delirium and hallucination, or convulsions and coma. This disease tends to recur and care must be taken to prevent relapse.

(3) **Temporary cerebral ischemia**

Temporary cerebral ischemia of the arterial system in the neck is usually marked by flaccidity of one limb or half of the body, sensory disturbance in half of the body, aphasia or vision disorder of one eye. Temporary cerebral ischemia due to vertebral-basal arterial system is usually marked by dizziness, blurred vision, ambiopia, nausea and vomiting, dysphagia and ataxia. The symptoms normally last only a matter of minutes, with the longest duration being no more than 24 hours, hence the name temporary cerebral ischemia.

(4) **Cerebral thrombosis**