

## The use of Chinese biorhythmology in the treatment of hypertensive illness

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At present, as evidenced by the practical experience of clinicians, arterial hypertension occupies a leading place among the risk factors for the development of such severe complications as cerebral stroke and myocardial infarction. The prevalence of arterial hypertension among the population of Russia has now reached critical values: 39.2% in men and 41.1% in women. At the same time, there is undoubted evidence that antihypertensive therapy should be carried out for a long time, in essence, for life, and subject to its adequacy and control over the level of pressure. The emergence of new antihypertensive drugs does not solve the problem of the existing reality - a high level of hospitalization of patients with essential hypertension remains, and side effects of the drugs used are often noted. One of the methods of treatment that allows

Acupuncture (acupuncture) is one of the oldest branches of medicine. This method has existed for more than four millennia and has long proven its high efficiency in the treatment of many diseases, including hypertension.

In the mechanism of the hypotensive effect of acupuncture, the leading role is assigned to a decrease in the concentration of renin and norepinephrine in the blood plasma [8], aldosterone in the blood serum [1], increased urinary excretion of sodium and chlorine in the absence of changes in potassium excretion [9]. As a result of a decrease in the vascular resistance of the kidneys, an increase in renal blood flow, an improvement in cerebral circulation due to a decrease in the tone of the arteries and an increase in the tone of the veins of the cerebral vessels were noted [3].

One of the concepts of ancient Chinese medicine is based on the cyclical nature of processes occurring both in nature and in living organisms, depending on the time of day and seasons of the year. Biorhythmology was adopted and used by almost every doctor in ancient China [7].

Certain regularities in the functioning of a healthy and sick organism were formed in the form of a doctrine of rhythmic processes during the day (24 hours) and are addressed to 12 main channels (functional systems or internal organs): so from 3 to 5 in the morning the lung channel begins to work, from 5 to 7 o'clock - colon canal, etc. The time of day (two-hour period) is associated with the maximum activity of the system (internal organ). This time can be called "the time or hours of maximum activity", or according to V.G. Vogralik "organ clock" [4].

Since the functional system in the "hours of maximum activity"

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is in a dynamic state, then it is most susceptible to both external and internal influences. Therefore, in Chinese medicine, on the one hand, it is believed that pathological processes are most clearly manifested precisely at this time, on the other hand, this period of time is most successful for therapeutic effects, in particular, acupuncture. Thus, the "hours (time) of maximum activity" can also be called "hours of maximum activity, the greatest variability, compliance with external and internal influences."

The two-hour period is the average for any location. The question arises as to how to determine the true time in order to provide the maximum therapeutic effect with the help of acupuncture. The disadvantage of existing devices that determine the optimal time for medical exposure using the acupuncture method is that they are designed for the latitude of Moscow, and additional corrections have to be introduced, determining the difference between Moscow and local time, which requires a significant investment of time, increases labor intensity and reduces accuracy ...

We have proposed and implemented a device for determining the most optimal time for medical exposure to the human body, the purpose of which was to reduce labor intensity and increase the accuracy of determining the most optimal time for medical exposure to the human body by the method of acupuncture [6]. The device is based on the fact that the times of sunrise and sunset at the summer and winter solstice for each location are constant values, and do not depend on the so-called summer or winter time conversion. The exact time of the winter and summer solstice can be found in the local offices of the hydrometeorological center.

The proposed model contains a reference matrix on which the time scale from 0 to 24 hours, the time of sunrise and sunset at the winter and summer solstices, and a calendar scale are located. The index matrix is made on a transparent basis in the form of a circular scale of the activity of the channels of human organs, forming 12 sectors (the 1st sector characterizes the activity of the lung canal and functions from 3 to 5 hours; the 2nd sector characterizes the canal of the large intestine and functions from 5 to 7 hours etc.). The support matrix is calculated strictly for a specific area, and gives an inaccurate result in areas with a different latitude.

The biorhythm calculation system, created in ancient China for thousands of years, is based on a peculiar view of the structure of the Universe. To calculate the point open for the most effective impact, it is necessary to know the structure of the cyclic calendar, which strictly fits into the outline of the natural philosophical views of the Ancient East. This calendar is perhaps the oldest extant calendar system. It is especially remarkable in that it simultaneously reflects the cyclical and linear flow of time, which in itself contains a deep philosophical meaning [2].

Traditional Chinese medicine, in ancient times, believed that the human body has the ability to adapt to the environment. Combining this ancient concept with the chronobiological theory of modern Western medicine, it is necessary to single out such methods of chronopuncture as TsZY-U-

LYU-CHZHU (the method of using the "heavenly trunks and earthly branches" or the method of choosing an "open" point) and LINGUI-BA-FA (the method of using the "open" point of the "wonderful channels").

The TZI-WU-LIU-ZHU method is a heritage of traditional Chinese medicine, tested by time. In fact, the idea of TsZYU-LIU-CHZHU in Chinese medicine is a way of predicting possible changes in the human body as a whole, as well as in all its systems ("channels") and a method of correction using acupuncture, depending on the year, season, month, day and hours. In a narrower sense, as mentioned in Chinese-published acupuncture manuals, it is one way to select acupuncture points. The acupuncture points, calculated in accordance with the rule TsZY-ULYU-CHZHU, neutralize the adverse effects of the external environment in a certain space-time interval in the case of an existing pathology.

The LINGUY-BA-FA acupuncture technique involves the use of the "open" point of the "miraculous" canals. The "miracle" channel system is the least studied area of acupuncture in terms of setting the appropriate opening times for key points. One of the difficulties, just, is the lack of a single methodology that allows you to optimize the time moment of exposure to key points of "miraculous" channels, the impact on which at different times of the day gives a different therapeutic effect. The treatment method LIN-GUI-BA-FA serves to achieve the best results by optimizing the time moment of exposure to the corresponding key points and describes the cycle of alternating key points opening.

Chronopuncture, as a monotherapy, was used by us in 60 patients with hypertension of I and II degrees. The treatment was carried out in the hospital of the military field therapy clinic of the Samara Military Medical Institute. All treated patients were men of young and mature age, which is due to the specificity of the patient population. The average age of the patients was  $32 \pm 5.7$  years. All patients obtained consent to this type of treatment prior to monotherapy in the form of chronopuncture. Acupuncture was carried out both with the use of a device for determining the most optimal time for medical exposure to the human body, and with the use of the TZYU-LYU-CHZHU and LIN-GUI-BA-FA methods. We did not set the goal of determining the effectiveness of this or that acupuncture method, therefore, these treatments were alternated with each patient. The timing of the relief of clinical manifestations of the disease and a decrease in blood pressure to normal values (BP 120 and 80 mm Hg) occurred on average 5–7 days earlier than in patients treated with conventional drug therapy. We also found that chronopuncture in the treatment of hypertension has a quick and lasting effect when it is carried out at 11-13 hours, and is least effective at 13-15 hours.

Having considered such methods of chronopuncture as TsZY-U-LYU-CHZHU and LIN-GUI-BA-FA and our proposed "Device for determining the most optimal time for medical effects on the human body", it should be noted that the calculation of the most optimal time for acupuncture of one points

quite a painstaking procedure. It requires knowledge of the principles underlying the chronotherapeutic approach to acupuncture, inextricably linked with the natural philosophical views of the ancient Chinese and having a very strict theoretical basis. The problem of the chronotherapeutic approach to acupuncture is very important, since the doctor who uses it in his practice after the diagnosis is faced with the triune task of choosing the place, method and time for exposure.

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