

Perioperative Stress Response and Six-Meridian Syndrome Differentiation

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This paper described the occurrence, development and pathophysiological changes of the stress response perioperative in detail, and compared with traditional and modern medicine on cognition of the Six-Meridian Syndrome Differentiation theory base on the theory of Zang-Fu organs, meridians, function of gasification, diseases transfer from outside to inside, from shallow to deep, and interconnection, interaction, mutual causes and results to each other of the zang-fu organs and function, we investigate happen, development, ending of the stress response perioperative in consistency with the Six-Meridian Syndrome Differentiation theory, provide inspiration and thinking method, an integrated traditional Chinese and Western medicine way, which is suitable, effective, symptom and root curable, to regulate the stress response perioperative.

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INTRODUCTION

Stress response is a physiological reaction that occurs in response to a perceived harmful event, such as trauma, blood loss and hypoxia, pain, cold, fear, strenuous exercise, acute infections and surgical anesthesia, which resulting in the sympathetic nervous excitement and pituitary adrenal cortical secretion increasing, a series of neuroendocrine responses happened to all kinds of body and metabolic changes. Six-Meridian Syndrome Differentiation, a basic dialectical method recorded in a book named "cold discussion" by Zhang Zhong-Jing, provided a kind of flexible but changeable dialectical way of thinking. Perioperative stress response is an alien nociceptive stimulation effects on the human body, from weak to strong, less to more, local to the whole, and eventually causes body's series of pathological and physiological changes and the pathogenic process.

We can see from the explanation of the occurrence, development and ending of the perioperative stress response in a way of Six-Meridian Syndrome Differentiation that there is no difficult to find out, on the basis of physiological functions and pathological changes of the Zang-Fu organs and meridians, Qi, blood and body fluid, the whole diagnosis and treatment progress combined with the strength of the body's resistance, etiology of property and of urgency to advance and retreat, evil waning and waxing on exogenous

diseases occurrence and development process in a variety of symptoms of analysis, synthesis, induction and legislative prescription exactly solved the postoperative complications caused by stress response, which maybe worried anesthesiology for a long time.

Obviously, at a loss of the entire western medicine to stress response leading to pathophysiological process, a clear theoretical basis and methods of diagnosis and treatment of Traditional Chinese Medicine (TCM) enable us to see the dawn in solving this difficult problem.

STRESS RESPONSE AND THE STRUGGLE BETWEEN RIGHT AND EVIL

Stress response is a nonspecific defense response to external stimuli, which belongs to physiological phenomenon. If the stress response time is short, harmful effects will not be produced on the body. This can also be seen as the struggle between right and evil of the body, when the evil weak that right prevails over evil, righteousness will evil dispel, and rehabilitation of the body. This is the natural process of human against disease. As the so-called "righteousness inside, evil can't be hurt". But if in a long time of the noxious stimulation strong and lasts for, it will lead to a strong stress response and make the body work excessively, eventually, it become a basis of some disease occurrence and development of pathology. This can be seen as evil excess and not be dispelled, felt into a stalemate between right and evil and result in a series of pathological phenomena, finally, the evil enters the body and causes diseases.

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PATHOGENIC FACTORS AND THE RULE OF TRANSFER

The noxious stimulation or the pathogenic factor like perioperative surgical trauma, anesthesia, blood loss, hypoxia, pain, cold, fear, infection, blood or fluid transfusion all can lead to strong stress response of the body, which means these virulence factors have a certain pathogenic path, these follow the rule of development and stimulate the stress response, but resistance to disease of the body decided what's the strength, direction, outcome of the stress response. In other point of view the problem, the nociceptive stimulation described above can be seen as evil invading, the occurrence, development and outcome of the stress response is the transfer rule of the disease, is it a coincidence with the disease regularity described by Six-Meridian Syndrome Differentiation? The pathogenic factors of surgical trauma, pain, cold, infection, blood transfusion and fluid transfusion can be classified as exopathic disease, although not with the traditional six evils are described, but undoubtedly it is caused by exogenous hypoxia, blood loss during operation is inevitable. However, hypoxia itself can be viewed as pathological process of qi stagnation or prostration, and blood loss, gas with the blood off, which caused pathological phenomena of the deficiency of both qi and blood; regardless of the type of anesthesia was explained by the theory of TCM is suppression of resistance of Qi category; and anesthesia for surgical anxiety and fear and belongs to the category of emotional diseases; in addition patients age, physique and with disease status and anesthesia safe operation is extremely important relationship.

Therefore, it can be seen that exogenous pathogenic factor is the cause, Qi movement not smoothly, deficiency of both Qi and blood is the fruit, and emotional and physical factors constitute the disease occurs, all elements of the development of and disease occurrence becomes inevitable. There are striking similarities and discuss the "Treatise on Cold Damage Diseases" exogenous pathogenic!

TCM MERIDIAN THEORY AND THE OCCURRENCE MECHANISM OF STRESS RESPONSE

Six meridians, which explain Treatise on Cold Damage Diseases, is inseparable from the organs, meridians and gasification function, completed each other and mutual invented among the triple , also can explained the pathophysiological changes on behalf of six meridians comprehensively. The stress response also requires three pathophysiological mechanism to explain, Firstly, the stress response, there must be a mediated pathway, means the pathway of the nociceptive stimulation upload and the stress hormones download, including neural pathway and humor pathway, the former is the hypothalamic pituitary adrenal axis (HPA axis), the latter is the sympathetic adrenal axis (SA axis); Secondly, stress hormone secreted into the blood after stress response happened, which play a role in the target organ, the target organs including heart, liver, pancreas, lung, kidney, brain, gastrointestinal tract, blood, bone marrow and immune system; Thirdly, the original organ function and the influence degree of the stress hormone determine whether the

organ can maintain the normal physiological function in the future and the extent of the damage.

The three kinds of pathological mechanism mentioned above is fully in accord with the relationship among the Six-Meridian Syndrome Differentiation Theory on behalf of the meridian, viscera and gasification function, which is interrelation, interaction, inseparable. At the same time, mediated pathway - target organ - changing as a function of stress response mechanisms, as a dialectical method, hinted no matter what the other meridian dialectical, the internal organs dialectical or other dialectical method may be one-sided if there is a single. So the "Treatise on Cold Damage Diseases" wrote by Zhang Zhong-jing, recorded the eight classes dialectical, triple energizer dialectic, the cause of dialectic, Qi, blood and body fluid dialectical and syndrome dialectical in addition to the predominant Six-Meridian Syndrome Differentiation, were also involved in content further show that "variable" and "various guises serve the single purpose" truth and wisdom advocated by the Zhong-jing.

THE THEORY OF MODERN MEDICINE AND STRESS REACTION

The "pathological levels", illustrate the relationship between six dialectical theory and stress response, from which we can divide three Yin-Yang into three pathological levels on purpose, although there are deviations from the place of traditional Chinese thought, but expressed disease development direction and the transfer rules vividly. So-called Solar disease means imbalance of Yin and yang on the human body surface, discord of the nutrient Qi and defense Qi; The Yang brightness disease syndrome means inside, affecting gastro-intestine more; The lesser Yang syndrome means half inside half outside, involving bile and triple energizer; The lesser Yin means more deeper, affecting the heart and kidney; The reverting Yin disease syndrome involves liver meridian, affecting emotion more.

From six different levels "Pathological levels" expresses exogenous diseases in a way from outside to inside, shallow to deep , finally affects the internal organs and emotional process, although the artificial division, but really has certain similarity with the happening of the disease. Firstly Perioperative stress response started from the surgical wound, which lead to massive release of vaso-active substances and the activation of a series of inflammation, then coagulation system was activated, and the neutrophils and mononuclear cells seepage to the wound around in chemotactic factor, the local blood vessel rupture, bleeding, vascular endothelial growth factor release, which causes a large number of inflammatory mediators activate and lead to systemic pathophysiological changes; surgical wound stimulus upload hub through the nerve and download through the hypothalamus - pituitary - adrenal axis after integrated, release of stress hormones caused systemic function change.

In the circulatory system, a large number of catecholamine release into the blood, which causes heart rate increasing,

blood pressure higher, myocardial oxygen consumption increasing, myocardial injury, decreased cardiac output, cardiac arrhythmia; in the digestive system, large amounts of insulin, glucagon release, enhanced catabolism, intestinal oxygen consumption increased, resulting in intestinal ischemia and hypoxia edema, nausea, vomiting, abdominal distension; in the urinary system, a large amount releases of angiotensin II, aldosterone, decreased renal blood flow, filtration rate, water retention of sodium, lead to oliguria, urinary retention, serious renal insufficiency; in respiratory system, inflammatory mediators lead to pulmonary interstitial edema the material, inflammatory exudation, vascular permeability increased, ventilation disorder, caused by hypoxia, asthma, cough and expectoration; in central nervous system, cerebral blood flow and cerebral metabolic dysfunction increased, often lead to cognitive dysfunction, especially the elderly. Each system function is abnormal, interaction, and ultimately may have multiple organ failure. This is one of the most serious complications after anesthesia.

From the physiological and pathological changes, the incision although on the surface, but cause change of systemic function, wound more deeply, such as chest, abdomen, craniotomy, cardiac surgery, etc., more strongly induced stress response, the change of the system function happened at the same time. The theory of TCM believes that the impaired skin damage the local Qi and blood, also the meridian and the Qi movement, which can be seen as discord of the nutrient Qi and defense Qi, then transfer kidney qi complement, resulting in the struggle between the right and evil, if righteousness prosperous. The right overcame evil, otherwise evil wins, caused disease, mean a series of postoperative complications. This theory can explain, why the young people in clinical, even stress response happened strongly and still not be able to recover smoothly; but the old and infirm, strong stress response is the culprit of postoperative severe complications. From "pathological levels", surgical trauma is a disease in the solar disease, the body imbalance of Yin and Yang, discord of the nutrient Qi and defense Qi, swelling heat pain; postoperative nausea and vomiting can be seen as yang brightness disease syndrome; postoperative high blood volume as the invasion of lesser yang, triple energizer water storage; postoperative digestive function disorders can be seen as a disease to lunar disease, the expansion of abdominal distention and fullness; postoperative heart and renal failure can be seen as diseases and lesser yin, difficulty in urination, heart and kidney do not interact; postoperative cognitive dysfunction can be as reverting yin disease syndrome, involving liver meridian and leading to emotional changes. "Pathological levels theory", although not properly explain six dialectical essence completely and not perfect itself, but bring enlightenment to the modern people in understanding of Six-Meridian Syndrome Differentiation and from another point of view, summarized the disease occurrence and development highly, which is interaction, interrelation, inseparable with the body's various organs function.

THE CHINESE INTEGRATE WESTERN MEDICINE CHARACTERISTIC WITH TREATMENT ON THE SYMPTOM AND ROOT REGULATE STRESS RESPONSE

Perioperative stress response regulate, has become a hot research topic recently, which has the most direct relationship between the strong stress response and a series of postoperation complications. But it is not a simple thing to regulate except for solving the three important problems: determined the optimal intensity of stress response boundaries, and judged the strength of the stress response accurately, and regulation measures of stress response.

Although some drugs, the choice of anesthesia, surgical skills and other measures used to regulate and control the stress response, but we still not prevent the occurrence of strong stress postoperation effectively. No matter what the traditional Six-Meridian Syndrome Differentiation theory or modern understanding of the Six-Meridian Syndrome Differentiation, it bring us a enlightenment, that is the occurrence, development and regulation of stress response must fully realize the relationship between local and overall, the contact between each of the Zang-Fu organs and functions of mutual influence, in order to find appropriate and effective way to treat the symptom and root with the Chinese integrate Western medicine.

The nodes of the integrated Chinese and Western medicine in the treatment of stress response should include:

(1) Inhibit Initiating Factors of Stress Response

The initial factor of stress reaction mainly includes two aspects: preoperative stress, anxiety and fear, namely the so-called mental stress; followed by surgical incision pain, irritation and inflammatory reaction. Western medicine can only be achieved by the use of sedative drugs to relieve the anxiety of patients. But if use of TCM as a calm and soothe the nerves of the comprehensive processing method can not only to achieve the function of adjusting the overall function, but also to reduce sleepiness and sedative drugs, excessive sedation and other adverse reactions.

The most important part of the stimulation of the surgical incision is a good analgesia, that is good interoperation anesthesia and postoperative analgesia, which has great advantages in western medicine. But if you consider the inflammatory reaction of incision, anti-inflammatory, antipyretic, analgesic medicine can also play a good effect. Surgical trauma is disease in the solar disease, the surface disorder of nutrient Qi and defense Qi caused swelling heat pain and other disease, Chinese medicine solution form, clearing away heat and in addition to anti-inflammatory itself and the comprehensive opsonization, especially on endocrine and immune system, such as aconitine, Rhizoma Corydalis DL, wild papaya, perhaps this effect on the regulation of stress response more favorable.

(2) Block or Reduce the Nociceptive Stimulus Upload

So-called blocking nociceptive stimulus upload means have to block nerve upload pathway, in addition to individual local anesthetic action of TCM and have limited use in operation, Chinese medicine have no better method obviously. Therefore, to achieve the purpose of blocking nerve conduction is seems to the local anesthesia. But if change an angle, from the principle of six meridians, pathogen control variable from the table into the inside, from the shallow to the deep, in this way, it is the Chinese traditional medicine intervention targets and theoretical.

Acupuncture anesthesia rise in the fifty's, although it can't explain the principle, the effect of acupuncture analgesia is obvious. Acupuncture anesthesia point selection is carried out in accordance with the meridian, and is to bear the brunt of the solar and yang brightness disease syndrome, such as jade, damper, Hegu, futu, (thyroid surgery). In addition, the choice of surgical incision around the Yu Xue is also one of the commonly used a method of selecting acupuncture points. According to the level of the six meridians and believe that acupuncture anesthesia initial point selection concept is not absolutely accidental, should contain some local dialectical thinking of truth.

(3) The Response of the Regulation of the Central Nervous System to Noxious Stimulation

How to adjust the centrally mediated stress response has attracted the anesthesiologist attention, but both opium drugs or non-steroidal anti-inflammatory drugs in clinical, the regulation of stress response are a ceiling effect, the dose adding just bring the adverse reaction without control effect increasing. It has a direct relationship between Maintaining intraoperative hemodynamic stability and regulation of centrally mediated stress response, from the perspective of the theory of Six-Meridian Syndrome Differentiation, hemodynamic change has been involved in lesser yin, reverting yin disease syndrome et al. At the same time, the interaction between the organs and the organs is very obvious. Therefore, the regulation should play an important role from this level by acupuncture. Lots of studies have reported, intraoperative stimulation of the Neiguan, Shenmen, three yin mating, Zusanli, Hegu, Quchi acupoint can increase the effects of anesthesia, hemodynamic stability, reduced the stretch reaction, weaken the intensity of stress reaction and so on, and also get a lot of biological evidence such as stress hormones and inflammatory medium level changes.

In addition, stress response involves a wide range of neuro-immune endocrine system, with some immunomodulatory drugs or prescription from the regulation system to proceed

with the stress response regulator should be researched in the next.

(4) Stress Response Target Organ or System Protection

Perioperative organ function protection is a very complex issue, including the protection of heart, lung, liver, kidney, brain, blood, digestive system and immune system and related to the professional knowledge very much, which also is key point and hotspot currently in the anesthesia and surgical medical research. But in the face of so many systems and organ protection as a problem to be considered the problem is too complicated.

If the organ function protection is raised to a whole level, from the end of the regulation of the stress response to the end of the pathology, will have a role in the role of half times. From the point of view of the Six-Meridian Syndrome Differentiation, the final stress response occurred to organ dysfunction, its pathogenesis is deficiency of Qi and blood stasis and blood stasis category. At this time, according to the physiology and pathology of the six classics, analysis stasis where classical prescriptions, the diagnosis and treatment.

(5) Reduce or Weaken the Reaction Intensity of the Stress Response

Reduce stress reaction of terminal response intensity of the typical example is postoperative antipyretic cooling, followed by the correct catabolism caused by negative nitrogen balance. If proceed from these two aspects, then in the regulation of stress response of the final mechanism can be a lot of anti-inflammatory drugs and correct nutritional metabolism of drug application. Exactly how the effect to be studied further, but only for febrile response from the point of view of the Six-Meridian Syndrome Differentiation, which belongs to the category of fever, from the sun table card heat evil to pass change, principle, method, prescription drugs should be handy thing. It is worth noting that, heat removal is ultimately palliative method, should be integrated with other medicine discretionary mechanism.

CONFLICT OF INTEREST

None.

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