

Effect of emotion on immune system

Psychoneuroimmunology has always been one of the active research areas in the past decades. Negative emotions have long been known to pose huge impact on our immune system. Cellular studies revealed that clinical depression is showing an association with lowered NK cell activity and proliferative response of lymphocytes to mitogens, as well as alterations in numbers of several white blood cell populations¹. Animal models also show immunosuppression upon specific stressors².

In human, people with psychological stress are observed to be more vulnerable to infections and autoimmune diseases, together with impairment of wound healing processes. Blood samples had been collected from 65 female nurses recruited in a 1-year follow-up study to understand the relation among perceived stress, social support and immunity³. It was found that participants who showed high attachment avoidance had a significant reduction in NK cell cytotoxicity. This indicates that immune response would be hindered in people with social avoidance style of behavior and higher perceived stress.

Another clinical research was done to assess the immunological variations in emotional hindered subjects and healthy controls⁴. Results showed that CD4/CD8 ratio was elevated in anxiety patients but not in depressive and control groups. CD4 and Cd8 are T-cells in blood responsible for identifying and attacking foreign bodies. Alterations in the ratio would affect our immune functions which could pose potential threats in maintaining good health.

Traditional Chinese medicine theory reinstates that *Zhengqi* (正氣) is crucial for maintaining health and keep us away from sickness (正氣内存、邪不可干). *Zhengqi* is equivalent to immunity and could be generalised as the natural power of our body fighting against pathogens. Its adequacy determines how susceptible we are to infections and diseases. Ancient CM scholars suggested that all sicknesses are resulting from the aberrant flow of *qi* (百病生於氣) and that our emotions are the major cause for *qi*-stagnation (氣滯). One of the roles of *Qi* is to ensure sufficient nutrient supply to all parts of the body. If negative emotions persist, the transport of *qi* will be impaired. Consequently, the supply of nutrients will be suspended and the normal bodily conditions will be interfered, leading to all types of sicknesses. Therefore, TCM theory emphasizes on the importance of preseving *Zhengqi* and hence the prevention of sickness. Of which, maintaining the mind-body balance is especially essential.

In the COVID-19 pandemic, people are experiencing negative emotions including anxiety and fear. Prolonged emotional imbalance could disturb the flow of *qi*, where *qi* has a role to regulate fluid circulation. Compromised fluid regulation hence hinders the operation of various viscera including the spleen and the lungs. Dysfunction of these viscera induce setback in bodily function and people might suffer from fatigue, chest and abdominal discomfort, diarrhea and other digestive and respiratory symptoms.

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