Aged garlic extract supplement helps relieve acute stress

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Psychosocial stress is a ubiquitous phenomenon to most people living in a complex social environment. Stress has been implicated as contributors to many physical diseases as well as psychiatric disorders like depression and anxiety disorders. Studies of responses to acute stress may reveal processes that eventually lead to maladaptive responses to stress. Animal studies of stress have demonstrated a wide range of neurochemical and morphological alterations that could contribute to the stress reaction. Among them, the hypothalamus-pituitary-adrenal axis and its end product cortisol are essential for an adequate response to stress.[1] Cortisol is important for proper body functioning but needs to be balanced. However, some people experience a greater spike in cortisol than others when they experience stress.[1] The elevated cortisol levels in response to stress may interfere with learning and memory, lower immune function and cause increases in weight gain, blood pressure, cholesterol, and heart disease.[2] In addition to cortisol, stress increases the rate of decline in brain monoamine levels (namely serotonin, norepinephrine, and dopamine), which may eventually cause depression.[3]

Excess stress is a common problem for many people and there are many ways to help manage stress. Medication such as anxiolytics and antidepressants is a simple, fast way to reduce stress. Although medication can relieve the symptoms of stress, it is not usually suitable for long-term use because the potential side-effects from these medications may outweigh their benefits. Other treatments, including exercise and yoga, can be just as effective as medication but do not come with unwanted side effects.[4,5] However, all of these stress relieving strategies take time, and sometimes it might feel overwhelming or frustratingly slow.

Garlic (Allium sativum), a strong smelling and pungent tasting food plant, has a rich history of medicinal use. In addition to its anticancer, anti-inflammatory, antioxidant, immunity enhancing properties, antibacterial activities, and blood pressure lowering ability, studies had demonstrated that garlic extract has antidepressant-like activity in stress animal model of depression.[6] Garlic has fewer side effects because it comes from natural elements and is a common food plant. Body odor, bad breath as well as gastrointestinal side effects may occasionally occur. Garlic should be used cautiously by persons who are at risk for bleeding as garlic has antiplatelet effects. Persons allergic to garlic or other members of the lily family should avoid use of garlic. However, its strong aroma may limit its use in stress-relief. To alleviate the strong aroma and taste, Hwang et al used the low-temperature-aged garlic (LTAG) extract to test its antipsychological stress effect in mice under acute restraint stress exposure.[7] They found that LTAG, similar to raw garlic (RG), can significantly decrease stress-related hormones such as corticotropin-releasing factor, corticosterone, and cortisol. Likewise, both RG and LTAG significantly restored acute restraint stress-induced decreases in concentrations of brain monoamine levels. RG and LTAG also improved the antioxidant system.[7] This study adds a piece of preclinical evidence to support the role of LTAG, a garlic extract without its distinct aroma and sharp taste, in stress relief effect. However, more works are needed to comprehensively evaluate the stress therapeutic effect of LTAG. For example, the protein brain-derived neurotrophic factor (BDNF), one of the major neurotrophic factors in the brain, is a main contributor for the link between stress and depression.[8,9] It would be of interest to test whether LTAG can restore decreased brain BDNF levels after restraint stress. Study also needs to test whether LTAG has similar stress relief effect as anxiolytics during stress test.[10] The study by Hwang et al demonstrated that LTAG administration significantly restored acute restraint stress-induced decreases in brain monoamine levels (serotonin, norepinephrine, epinephrine, and dopamine). Traditional monoaminergic hypotheses of depression proposes that the underlying biological mechanisms for depression is a deficiency of central monoaminergic systems and that agents which act by various mechanisms to increase synaptic concentrations of monoamines are effective antidepressants.[11] Thus, LTAG supplements may have therapeutic potential for depressive disorder. Finally, garlic is renowned for its wide range of favorable effects, particularly in the prevention and treatment of cardiovascular disease.[12] Numerous epidemiological studies have confirmed that high comorbidity exists between cardiovascular disease and depression.[13] LTAG may kill two birds with one stone for patients with cardiovascular disease and depression because it has a dual role, not only as for the prevention/treatment of cardiovascular disease, but also as stress/depression relief agent. However, further randomized double-blind placebo-controlled trials are needed.

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Conflicts of interest: The authors declare that they have no conflicts of interest related to the subject matter or materials discussed in this article.

Journal of Chinese Medical Association. (2019) 82: 677-678.

Received June 19, 2019; accepted June 19, 2019.

doi: 10.1097/JCMA.0000000000000142.

ACKNOWLEDGMENTS

This study was supported by grant V108C-038 from the Taipei Veterans General Hospital.

We thank Emily Ting for English editing.

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