

Benefits of *Echinacea purpurea* in boosting the immune system and decreasing tumor recurrence in cancer patients: A letter to editor

Kiavash, Fekri *

Pediatric oncologist, Cancer Research Center, Shahrekord University Of Medical Sciences, Shahrekord, Iran.

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Dear Editor:

Patients with cancer consistently suffer from a decreased immune response that leads to opportunistic infections and increased morbidity and mortality in these patients. Boosting the immune system in these patients is accomplished by appropriate diet, psychological support and certain drugs such as granulocyte colony-stimulating factor in a clinical setting. *Echinacea purpurea* also can be used to boost the immune system in cancer patients. Theoretically, *E. purpurea* can boost the immune system through several mechanisms, including (1, 2)

- Activating phagocytosis and stimulating granulocytes;
- Increasing the production of cytokines, especially interleukin 1 and interleukin 6; and
- Increasing the leukocyte activity.

The leachate of *E. purpurea* aerial parts dramatically increases the percentage of phagocytic action of human granulocytes and increases the phagocytosis of yeast particles under laboratory conditions (in vitro) (1).

Interruption of hyaluronidase activity, stimulation of cortex parts of adrenal glands, stimulation of the production of properdin (a serum protein that can neutralize the actions of bacteria and viruses) have also been reported after treatment with this plant (1,2).

*Corresponding author: Pediatric oncologist, Cancer Research Center, Shahrekord University Of Medical Sciences, Shahrekord, Iran. Tel: +98 - 09111540874 Email: kiavash13@yahoo.com

The pharmacological activity of *E. purpurea* is related to its compounds and volatile essential oils. The immune system-boosting effect of this plant is related to lipophilic amides, alkamides and caffeic acid derivatives, which is produced by stimulating the phagocytosis of multinucleated granulocytes (2,4).

In several studies, *E. purpurea* effect on preventing or treating infections (3, 4) and on reducing the side effects of anti-cancer drugs was investigated. It was concluded that the products containing *E. purpurea* exhibit a definite and pronounced effect on stimulating the immune system.

As a pediatric oncologist, I used to prescribe *E. purpurea* for my patients with different types of cancers (hematopoietic and solid malignancies) in recent years and I observed a decrease in opportunistic infections and better immune response in them. Regarding the improved immune system, this plant can probably inhibit the proliferation of malignant cells and tumor recurrence by stimulating NK cells (2) in these patients. This tentative argument should be investigated in future studies. If it is proven, we can use this plant as an adjuvant agent in chemotherapy protocols.

References:

1. Murray MT. Echinacea species (narrow-leafed purple coneflower). In: Pizzorno JE, Murray MT: Natural medicine, 4th ed. Philadelphia: Elsevier; 2013. p. 718-725
2. Fu A, Wang Y, Wu Y, Chen H, Zheng S, Li Y, et al. Echinacea purpurea Extract Polarizes M1 Macrophages in Murine Bone Marrow-Derived Macrophages Through the Activation of JNK. J Cell Biochem. 2017;118(9):2664-71
3. Schapowal A, Klein P, Johnston SL. Echinacea reduces the risk of recurrent respiratory tract infections and complications: a meta-analysis of randomized controlled trials. Adv Ther. 2015;32(3):187-200
4. Hudson JB. Applications of the phytomedicine Echinacea purpurea (Purple Coneflower) in infectious diseases. J Biomed Biotechnol. 2012;2012:769896