



POSTER NO 10

Honey and Its Effect on the Immune System

Zidan, Jamal; Shetver, Lika; Gershuny, Anthony; Abzah, Amira; Tamam, Sigalit; Stein, Moshe; and Friedman, Eitan; "Prevention of Chemotherapy-Induced Neutropenia by Special Honey Intake", **American Journal of Clinical Nutrition**, Vol. 67, 519S-526S, Copyright © 1998 by The American Society for Clinical Nutrition, Inc. **Medical Oncology**, vol. 23, no. 4, 549-552, 2006

ABSTRACT

Febrile neutropenia is a serious side effect of chemotherapy. Colony-stimulating factors (CSFs) are used for primary and secondary treatment in patients with grade 4 neutropenia. The use of CSFs is expensive and accompanied by side effects. In the current study, Life-Mel Honey (LMH) was administered to prevent neutropenia and to reduce the need for CSFs in patients treated with chemotherapy. Thirty cancer patients receiving chemotherapy for primary or metastatic disease were included. All patients had grade 4 neutropenia and were treated with CSFs. The patients repeated the same chemotherapy schedule with the addition of LMH for 5 d. Blood count was performed weekly. There was no recurrence of neutropenia after LMH intake and no need for treatment with CSFs in 12 (40%) of patients. Eighteen (60%) patients with LMH developed neutropenia grade 4 and were treated with CSFs ($p = 0.007$). Hemoglobin levels remained >11 g/dL during LMH intake in 19 (64%) patients. Only three (10%) patients had thrombocytopenia. Eight (32%) patients reported improvement in quality of life. The use of LMH in patients who are at high risk of developing neutropenia as a result of chemotherapy decreases the risk of pancytopenia and the need for CSFs. LMH is inexpensive, has no side effects, and is easy to administer.

EDITOR'S COMMENT

This remarkable hospital-based study with human patients demonstrated that a special honey improved the immune system responses of patients undergoing chemotherapy for various types of cancer. In some study patients, the use of honey made the use of a drug (CSF) unnecessary (in the U.S., the cost of administration of CSF is over \$1,000 per dose). That such a natural food may achieve such a powerful physiological effect is a significant demonstration of the potent and beneficial physiology of honey. The authors suggest that this effect is mediated by the antioxidant activity of honey. The antioxidant content of honey has been demonstrated in a number of studies and reports.

There may be other ways in which honey could affect immune function in such patients. Immunity is dependent on optimal cell metabolism, specifically muscle cells. Muscle cells supply the nutrients and energy necessary for rapid proliferation of immune cells during invasion or immune system compromise. If muscle cell metabolism is compromised, this will not happen optimally. We observe this in athletes who chronically over-train or fuel incorrectly. They suffer from compromised immune function, and are vulnerable to infections, particularly of the upper respiratory tract.

Other studies have also demonstrated that honey improves immune function¹.

Honey taken prior to bed will boost the immune system by reducing production and release of cortisol, the stress hormone that attacks the immune system. Honey may also have a direct effect on elevating white cell counts and hemoglobin levels and decreasing IGE levels².

¹ Al-Waili, Noori S, MD, "Effect of Honey on Antibody Production Against Thymus-Dependent and Thymus-Independent Antigens in Primary and Secondary Immune Responses", *Journal of Medicinal Foods*, 7 (4) 2004, 492-495

² Al-Waili, Noori S, MD, PhD, "Short Communication - Effects of Daily Consumption of Honey Solution on Hematological Indices and Blood Levels of Minerals and Enzymes in Normal Individuals", *Journal of Medicinal Foods*, Vol. 6, No 2, 2003