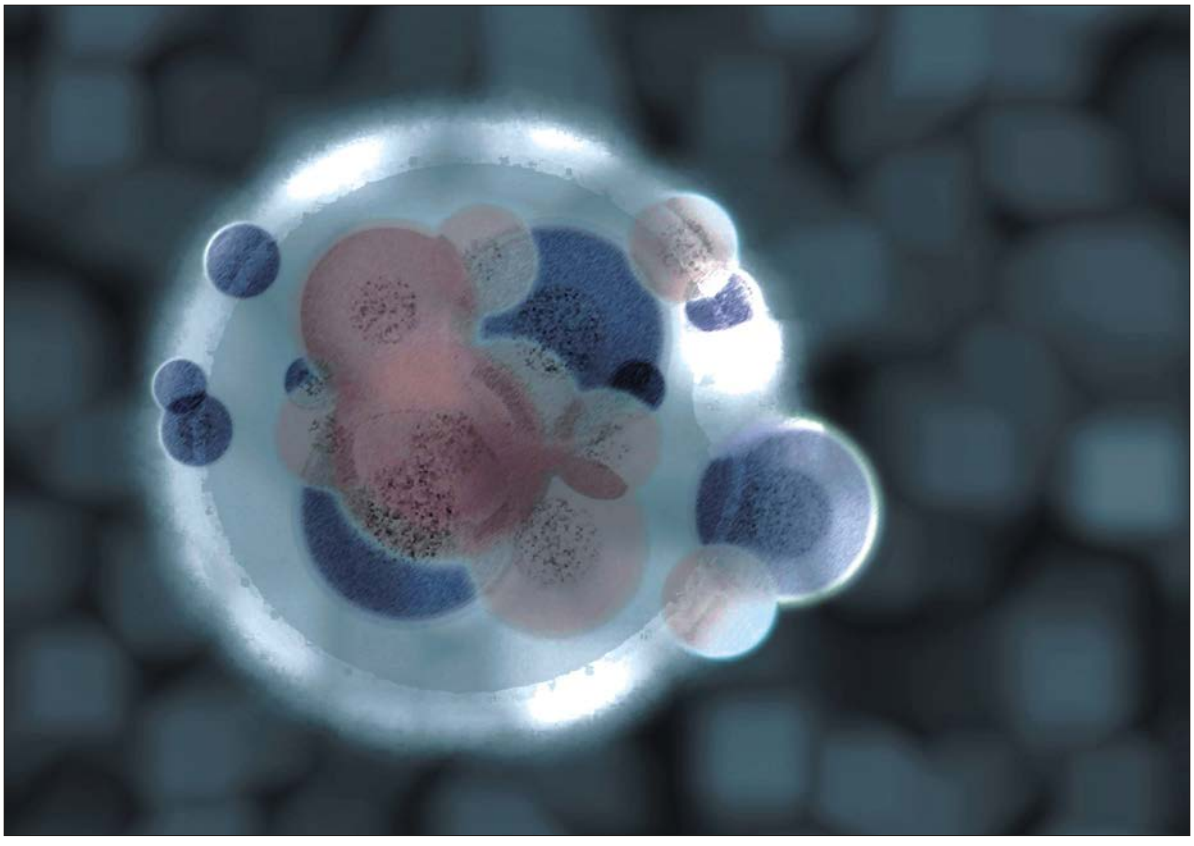

Journal of Biological Sciences

ISSN 1727-3048

science alert

ANSInet
an open access publisher
http://ansinet.com

Journal of Biological Sciences 8 (1): 236-238, 2008
ISSN 1727-3048

Excessive Hypereosinophilia and Elevated Serum IgE Levels Due to Royal Jelly and Honey Consumption in Atopic Child

Ener Cagri Dinleyici, A. Kadir Kocak, Coskun Yarar, Gurkan Bozan and Ozcan Bor
Department of Pediatrics, Faculty of Medicine, Eskisehir Osmangazi University, Eskisehir, Turkey

Abstract: We report a child with excessive hypereosinophilia caused by excessive ingestion of royal jelly and honey. A 10-year-old boy was admitted with the complaint of fatigue, anorexia and nausea and weight loss during 20 days. Clinical findings were completely normal except allergic rhinitis. Laboratory examinations revealed that white blood cell count was 78.300 mm^{-3} including 90% as eosinophil, serum IgE was 1193 IU mL^{-1}, eosinophilic cationic protein was 200. Laboratory examinations including immunoglobulin levels, collagen vascular disease parameters, serum vitamin B_{12} and folic acid levels were normal. Parasitological examinations including microscopic and serological were negative as well. We thought that he had idiopathic hypereosinophilic syndrome, however detailed history from his mother demonstrated that our patient had been received excessive amount of honey and royal jelly regularly during one month prior of is admission. He had positivity to Artemisia, Alternaria, Cat Fur and Dog Hair with skin test. We have no detected positive results for hymenoptera venom. We stopped receiving the royal jelly ingestion and started a therapy for allergic rhinitis. His eosinophil count dramatically decreased and clinical findings improved. At 6th months of follow-up period, clinical and laboratory findings were normal. This case suggests the importance of the public training about the excessive and inefficient usage of these alternative medicine approaches.

Key words: Allergy, child, eosinophil, hypereosinophilia, royal jelly

INTRODUCTION

Although current data are generally inadequate to support complementary and alternate medicine for the prevention or treatment of upper respiratory tract infection, allergy and anorexia, the usage of these medications have increased in children (Smith and Eckert, 2006). Bee products with treatment methods have been rapidly developed in the world in recent years. Honey, pollen, royal jelly and bee venom products are used for many diseases as folk medicine. Royal jelly is known as a traditional food for health promotion and has some nutritional and pharmacological functions in humans such as hypotensive activities, antihypercholesterolemic activity and antitumor activity (Miyata, 2007). Interestingly, recent years, the complementary products including royal jelly and other bee products are widely used for the treatment and prevention of allergic symptoms (Leung *et al*., 1997). Kurt *et al*. (2004) reported that the overall use of complementary and alternative medicines was 38 % in patients with asthma, seasonal allergic rhinitis or chronic urticaria in Turkey. Also from our country, Orhan *et al*. (2003) reported that royal jelly, other bee products and quail eggs are used alternative medicine for asthmatic children, especially in whom the disease is not well-controlled. However, beneficial effects of and appropriate amount for this beneficial effect are not defined very well and severe allergic conditions including cough, anaphylaxis, asthma, were reported after ingestion of royal jelly (Testi *et al*., 2007; Lombardi *et al*., 1998; Laporte *et al*., 1996; Takahama and Shimazu, 2006; Thien *et al*., 1996; Leung *et al*., 1995). Here-in we reported severe reaction as excessive hypereosinophilia to honey and royal jelly in a child with Artemisia allergy.

CASE REPORT

A 10 year old boy was admitted to our outpatient clinic with symptoms of fatigue, nausea and headache. According to his mother's explanation, he had loss of appetite for several years. At admission, his weight was 24.5 kg (5-10 percentile), his height was 131 cm (10-25 percentile), heart rate was 120 per minute, respiratory rate was 28 per minute, blood pressure level was 90/50 mm/Hg, he was pale and he had micro-lymphadenopathy at the cervical region and nasal

Corresponding Author: Ener Cagri Dinleyici, Department of Pediatrics, Faculty of Medicine, Eskisehir Osmangazi University, TR-26480, Eskisehir, Turkey Tel: +90-222-2290064

discharge. Other systematic evaluations were normal. Laboratory examinations revealed as white blood cell count was 78.300 mm^{-3} with 90% with absolute value 70.470, hemoglobin was 13.8 g dL^{-1}, platelet count was 472.000 mm^{-1}, erythrocyte sedimentation rate was 42 mm h^{-1}, serum IgE level was 1193 IU mL^{-1} and eosinophilic cationic protein was 200. Other immunoglobulins were normal. Coagulation factors and biochemical features were within the normal limits. Bone marrow aspiration showed a high level of eosinophil without features indicative for malignancy. Markers of connective disorders and hepatitis B surface antigen were negative. Abdominal ultrasonography and echocardiographic examinations were normal. Stool examinations for ova and parasites were negative. Antibodies against Toxocara, Echinococus were negative. For this reason we thought that he had idiopathic hypereosinophilic syndrome. But detailed history from his mother demonstrated our patient had received excessive amount of honey and royal jelly regularly during one month prior of his admission. We stopped receiving these alternate medications and treatment for allergic rhinitis started. Our patient had skin positivity to Artemisia, Alternaria, Cat fur and Dog Hair. We have no detected RAST positivities for hymenoptera venom. We can not perform prick-by-prick test or RAST for royal jelly. White blood cell counts (4900 mm^{-3}) and eosinophil count (200 mm^{-3}) dramatically decreased and clinical findings were completely improved. Sixth months later, white blood cell count was 7900 mm^{-3}, eosinophil count was 500 and serum IgE level was 353.

DISCUSSION

A hypereosinophilic syndrome is a term used to describe a wide variety of eosinophilic disorders without a known etiology with the characteristic findings including persisting eosinophilia and unexplained organ-system dysfunction. Because there is no specific diagnostic test for the diagnosis of the syndrome is one of exclusion. Hypereosinophilia is a common clinical finding that can be secondary to a number of disorders such as parasitic disease, allergy, drug reactions and malignant or vasculitic disease. Increased eosinophil count was persisting six months in patients with hypereosnophilic syndrome (Wilkins *et al*., 2005). However in over case, after cessation of pollen, royal jelly and honey consumption with anti-histaminic treatments including cetrizine, eosinophil count serum IgE levels and his clinical findings were completely improved.

Royal jelly, a secretion of the hypopharyngeal and mandibular glands of worker honey bees, is a creamy yellow-white, acidic material (Testi *et al*., 2007). Exact chemical composition of royal jelly has not been defined. Royal jelly contains a considerable amount of proteins, free amino acids, lipids, vitamins, some minerals and sugars and small amounts of steroids (Miyata, 2007; Testi *et al*., 2007). Ingested honey and royal jelly can cause of a broad spectrum of allergic reactions varying from cough alone to anaphylaxis (Lombardi *et al*., 1998; Laporte *et al*., 1996; Takahama and Shimazu, 2006; Thien *et al*., 1996; Leung *et al*., 1995; Testi *et al*., 2007). Lombardi *et al*. (1998) reported that two adult patients with systemic reactions due to honey and royal jelly ingestion. A clinical history of adverse reactions to honey was present in 2.3% of food-allergic patients. Intolerance reactions may be related to type of honey, in some studies a honey containing Compositae (especially Artemisia v.) pollens was reported to cause reactions (Lombardi *et al*., 1998). Royal jelly consumption has recently been linked with acute asthma, anaphylaxis and death (Lombardi *et al*., 1998; Laporte *et al*., 1996; Takahama and Shimazu, 2006; Thien *et al*., 1996; Leung *et al*., 1995). Leung *et al*. (1997) reported that 461 out of 1472 subjects having taken royal jelly in the past, reported adverse reactions are urticaria, eczema, rhinitis and acute asthma. Testi *et al*. (2007) reported a 28-year old man who was admitted to their clinic with the complaint of dyspnea, wheezing and cough during 4th day of antibiotic course of pharnygotonsillitis. However allergic evaluation for drug allergy were negative, according to detailed patient's history, he had ingested royal jelly with every antibiotic usage. A prick-to-prick test with royal jelly gave a positive result. In our patient, we describe excessive hypereosinophilia after royal jelly ingestion. Clinical findings of our patient were mild but laboratory findings showed leukocytosis (78.300 mm^{-3}) including 90% eosinophil and increased serum IgE levels. After cessation of royal jelly ingestion, white blood cell and eosinophil count were returned to be normal and still to be normal at 6th month after.

Complementary and alternative medicine has a worldwide usage and their use varies according region, beliefs, religions and life styles. Kurt *et al*. (2004) reported that the overall use of complementary medicine was 38% in atopic population in our country. Also royal jelly and bee products are used by mothers in their children for loss of appetite and poor weight gain like our case. Although complementary products are generally safe, may induce allergic and toxic reactions. Many patients started to use these products by hearing from friends-relatives and media. Some herbal preparations could be contaminated with pollens and may have adverse effect on pollen sensitive patient. For this reason, we conclude that all patients and clinicians must be aware of side effects. We

report excessive hypereosinophilia due to ingestion of bee products in atopic child and after cessation of ingestion, eosinophil count and serum IgE levels were dramatically improved. Further prospective, randomized investigations needed to clarify possible beneficial or adverse effect of royal jelly consumption in children.

REFERENCES

Kurt, E., S. Bavbek, G. Pasaoglu, O. Abadoglu and Z. Misirligil, 2004. Use of alternative medicines by allergic patients in Turkey. Allergol. Immunopathol. (Madr.), 32 (5): 289-294.

Laporte, J.R., L. Ibaanez, L. Vendrell and E. Ballarin, 1996. Bronchospasm induced by royal jelly. Allergy, 51 (6): 440.

Leung, R., F.C. Thien, B. Baldo and D. Czarny, 1995. Royal jelly-induced asthma and anaphylaxis: Clinical characteristics and immunologic correlations. J. Allergy Clin. Immunol., 96 (6 Pt 1): 1004-1007.

Leung, R., A. Ho, J. Chan, D. Choy and C.K. Lai, 1997. Royal jelly consumption and hypersensitivity in the community. Clin. Exp. Allergy, 27 (3): 333-336.

Lombardi, C., G.E. Senna and B. Gatti, 1998. Allergic reactions to honey and royal jelly and their relationship with sensitization to Compositae. Allergol. Immunopathol. (Madr)., 26 (6): 288-290.

Miyata, T., 2007. Pharmacological basis of traditional medicines and health supplements as curatives. J. Pharmacol. Sci., 103 (2): 127-131.

Orhan, F., B.E. Sekerel, C.N. Kocabas, C. Sackesen, G. Adalioglu and A. Tuncer, 2003. Complementary and alternative medicine in children with asthma. Ann. Allergy Asthma Immunol., 90 (6): 611-615.

Smith, C. and K. Eckert, 2006. Prevalence of complementary and alternative medicine and use among children in South Australia. J. Paediatr. Child. Health, 42 (9): 538-543.

Takahama, H. and T. Shimazu, 2006. Food-induced anaphylaxis caused by ingestion of royal jelly. J. Dermatol., 33 (6): 424-426.

Testi, S., L. Cecchi, M. Severino, M. Manfredi, G. Ermini, D. Macchia, S. Capretti and P. Campi, 2007. Severe anaphylaxis to royal jelly attributed to cefonicid. J. Invest. Allergol. Clin. Immunol., 17 (4): 281.

Thien, F.C., R. Leung, B.A. Baldo, J.A. Weiner, R. Plomley and D. Czarny, 1996. Asthma and anaphylaxis induced by royal jelly. Clin. Exp. Allergy, 26 (2): 216-222.

Wilkins, H.J., M.M. Crane, K. Copeland and W.V. Williams, 2005. Hypereosinophilic syndrome: An update. Am. J. Hematol., 80 (2): 148-157.