Case Study

An Elimination Diet Plus Supplements in the Treatment of Chronic Dermatitis and Type 2 Diabetes

Mark A. Hyman, MD

A 62-year-old white woman, a self-employed food industry consultant with a history of type 2 diabetes, presented with a 2-year history of a chronic, itchy, erythematous, plaquelike scaly rash with collerettes covering 70% of her body surface area. She had been evaluated at Northwestern University Medical School's Department of Dermatology in Chicago, Ill. A 2-year extensive workup including multiple biopsies revealed an atypical lymphocytic infiltrate with plasma cells, suggestive of mycoses fungoides, a skin T cell lymphoma. The rheumatoid factor was 75 IU/mL (when repeated 10 days later, it was negative), lactate dehydrogenase was 253 u/L and serum glucose was 303 mg/dL (16.82 mmol/L), but other laboratory data were negative, including serum chemistry, serum and urine protein electrophoresis, complete blood count, thyroid-stimulating hormone, rapid plasma reagin and an autoimmune profile (anti-DNA antibody, RNP/Sm, SSA [Ro], SSB9La), Histone, Scl-70, Jo-1, adolase, and creatine phosphokinase. Further evaluation with computed tomographic scan, liver ultrasound, and lymph node biopsy showed no evidence of malignancy. Her body mass index was 27; waist-to-hip ratio, .82, and body composition by calipers, 30%.

Over the course of 2 years she was treated with regular psoralen-UV-A 3 times a week; topical steroids; systemic steroids (prednisone on doses varying from 40 mg to 5 mg daily); trimacinalone (Kenalog), 40 mg intramuscularly; tacrolimus (Protopic), .1% ointment twice daily; cetirizine (Zyrtec), 10 mg daily; methotrexate, 2.5 mg weekly—all without success. Just before her consultation at Canyon Ranch in the Berkshires (Lenox, Mass), she was being considered for a bone marrow biopsy, thalidomide, and a tumor-necrosis-factor-alpha antagonist.

On presentation to Canyon Ranch, she reported no response to previous therapies for her dermatitis, severe fatigue, and poor glucose control. She had a history of type 2 diabetes, poorly controlled on metformin (Glucophage), 1000 mg twice daily, and glimepiride (Amaryl), 4 mg twice daily; dyslipidemia, poorly controlled on atorvastatin (Lipitor), 10 mg twice daily; and osteoarthritis treated with celecoxib (Celebrex), 100 mg twice daily. She also had a 3-year history of gastroesophageal reflux disease after long-term use of aluminum-containing antacids, controlled with ranitidine (Zantac), 300 mg twice daily. She had a negative upper endoscopy and tested negative for *Helicobacter pylori* antibody. She had recently stopped conjugated estrogens (Premarin) and medroxyprogesterone (Provera).

In addition to her medications she took glucosamine and chondroitin, vitamin C, calcium, B complex, vitamin E, folic acid, silica, and flax oil capsules.

Five years before presentation she had severe pneumonia treated with intravenous and oral doxycycline, and she had 2 prior episodes of severe traveler's diarrhea in China and Jamaica. As a child she had self-limited, severe eczema.

She drank no alcohol, was a nonsmoker, exercised regularly with a trainer and stated she had little stress in her life. Her diet was fairly high in refined carbohydrates such as rice, potatoes, and cereal.

Status on Presentation

On initial presentation her total cholesterol was 202 mg/dL (5.22 mmol/L); low-density lipoproteins, 119 mg/dL (3.08 nmol/L); high-density lipoproteins, 55 mg/dL (1.42 nmol/L); triglycerides, 176 mg/dL (1.99 nmol/L) on atorvastatin, 10 mg twice daily. Her fasting insulin was 8 µU/mL (57.4 pmol/L) and serum glucose was178 mg/dL (9.88 mmol/L) with a hemoglobin A_{1c} of .10

(mean calculated glucose 254 mg/dL [14.1 mmol/L]. Her C-reactive protein was .6 mg/L (.2nmol/L), erythrocyte sedimentation rate 6 mm/h, and homocysteine 7 µM/L. She had 17 IgG food allergies, negative IgG and IgA gliadin antibodies and no IgE allergies. Her comprehensive digestive stool analysis showed normal digestion and absorption, normal beneficial flora and metabolic markers. The only abnormality was a 4+ growth of *Proteus mirabilis* sensitive to plant tannins. Her hair analysis revealed high mercury 2.38 (normal 0-1) parts per million (ppm) and low chromium .26 (normal .34-.9) ppm, and vanadium .0101 (normal .014-.15) ppm.

Evaluation

Any immune response must have some trigger that alters the immune response, such as an infection, allergen, toxin, nutritional deficiency, or other stress. Identifying that trigger can be problematic with the limitations of current methods of diagnosis such as IgG food allergy testing and stool analysis. However, a systemic approach that involves removing the most common triggers and restoring normal intestinal ecology often can be helpful when the exact trigger cannot be identified. The effects of an unrefined, unprocessed diet also can have profound effects on lipid and glucose metabolism. Additionally, high-dose, long-term histamine blockers may alter proper protein digestion, which can affect allergy.

Treatment and Results

Initial therapy consisted of a modified elimination diet. She stopped the prednisone and methotrexate on her own at the beginning of treatment. Within 4 weeks, the rash greatly improved. Further elimination of the 17 foods producing IgG antibodies was initiated at 4 weeks and a number of supplements were added, including plant tannins, lactobacillus GG, and a combination of glutamine, aloe, and licorice powder. She was advised to taper the ranitidine. Within 12 weeks her rash completely disappeared and her fatigue had resolved. She was able to reintroduce all foods without recurrence of rash after 12 weeks and stop the glutamine, licorice, aloe, and plant tannins.

After 6 weeks of the elimination diet a number of supplements were added, including a high-potency multivitamin and mineral supplement; 400 IU of mixed tocopherols; a total of 1000 µg of chromium; vanadium, 7.5 mg twice daily for 4 months; conjugated linoleic acid, two 500-mg capsules twice daily; magnesium glycinate 200 mg twice daily; and alpha lipoic acid, 300 mg orally twice daily. After stopping amaryl and reducing her metformin from 1000 mg twice daily to once per day, in 12 weeks she lost 18 pounds (8.1 kg), and her hemoglobin A_{1c} dropped from 10.2% to 7.1% (.102 to .071). On her own she stopped atorvastatin, and her total cholesterol dropped from 260 prior to treatment to 167. She was able to taper ranitidine and had no reflux. Two years after therapy she continues to do well.

Mark A. Hyman, MD, is the medical co-director for Canyon Ranch in the Berkshires, Lenox, Mass.