Autologous Stem Cell Transplant Improves SLE

BY MITCHEL L. ZOLER
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NEW ORLEANS — Patients with refractory systemic lupus erythematosus have had "substantial improvements" following autologous stem cell transplants in an uncontrolled, phase I-II study.

The next step is to test the treatment in a randomized, controlled trial, Richard Burt, M.D., said at the southern regional meeting of the American Federation for Medical Research.

As of February, Dr. Burt had followed 48 patients treated with nonmyeloablative stem cell transplants and found that they stayed in remission for as long as 88 months and for an average of 33 months.

Among patients followed for at least 2 years, 70% were in remission; after at least 5 years, 50% were in remission, said Dr. Burt, chief of the division of immunotherapy and autoimmune diseases at Northwestern University in Chicago. He defined remission as requiring less than 10 mg/day of prednisone. Before receiving stem cell transplants, these patients required 50-100 mg of prednisone daily.

The treatment aims to ablate a patient's dysfunctional immune system and then regenerate immunity with autologous stem cells. In patients with systemic lupus erythematosus (SLE), as well as other autoimmune diseases, the pathologic defect is presumed to be environmental and not genetic, and hence the patient's stem cells should be able to regenerate a more normally functioning immune system.

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DR. BURT

A key to the success of this program is that patients receive a conditioning regimen that is immunoablative but not myeloablative. This makes the treatment safer, Dr. Burt said.

The series enrolled patients who had steroid-dependent SLE, with an average age of 26 years; 87% were women.

Stem cells were mobilized by using a combination of low-dose cyclophosphamide and granulocyte colony-stimulating factor. Stem cells were harvested 10 days later. Patients were then immunoablated with a combination regimen of high-dose cyclophosphamide, a total of 200 mg/kg, along with equine antithymocyte globulin to eliminate T cells. After the ablative regimen was complete, patients received an infusion of their autologous stem cells.

During recovery, patients required an average of six red blood cell transfusions and seven platelet transfusions. Adequate neurophil recovery usually occurred within 9 days after completion of the immunoablative treatment, and platelets usually recovered by day 12.

Patients generally were discharged from the hospital 14 days after immunoablation.

Following treatment, patients had a marked reduction in their level of antinuclear antibody and an increase in complement, so that levels returned to the normal range. Proteinuria severity also improved markedly, with reductions of about 75%. Many patients have also had resolution of pneumonitis or alveolar hemorrhage.

Antiphospholipid antibody levels dropped, enabling about 80% of patients to stop chronic treatment with anticoagulants without the occurrence of thrombotic events during a mean of 17 months.

Since the start of this study 7 years ago, four patients have died from disease relapse, one has died following a traumatic accident, and one has died from an unrelated, late infection.

Dr. Burt believes this treatment is probably applicable to several different autoimmune diseases. He and his associates have already used it safely and with encouraging results in patients with other autoimmune disorders, including Crohn's disease and multiple sclerosis. ■

Small Studies Show Exercise OK in Myositis

BY TIMOTHY F. KIRN
Sacramento Bureau

SNOWMASS, COLO. — Admonitions persist against patients with polymyositis and dermatomyositis engaging in exercise, despite research showing it can be beneficial, Ingrid E. Lundberg, M.D., said at a symposium sponsored by the American College of Rheumatology.

Creatine supplements may also help improve function.

The notion that exercise could aggravate myositis stems in part from observations of muscle inflammation among marathon runners, Dr. Lundberg explained.

No study has ever shown harm with exercise in polymyositis or dermatomyositis patients, and yet medical textbook articles continued to suggest that such patients should avoid exercise, said Dr. Lundberg of the rheumatology unit at Karolinska University Hospital, Stockholm.

Now, a group of researchers including Dr. Lundberg and her colleagues are conducting small studies whose findings challenge the idea that exercise increases inflammation. In fact, many have found that exercise actually improves function.

In one observational study involving 10 patients with stable chronic polymyositis or dermatomyositis following an exercise program, none of the participants developed signs of aggravated disease activity as measured by MRI, plasma creatine phosphokinase level, and biopsy. Instead, all participants had improvements in their muscle function, according to an index test; among six of the patients the improvement was significant, Dr. Lundberg said at the symposium.

The 12-week program involved 15 minutes of resistance strength training and 15 minutes of walking 5 days a week.

In addition, the patients experienced reductions in their "bodily pain," according to measures on the Short Form 36 health survey questionnaire (Rheumatology 1999;38:608-11).

Another study conducted around the same time assessed the effects of aerobic training rather than strength training. In that investigation, eight patients were assigned to a program that included stationary cycling and step aerobics. They were compared with five control patients given no intervention. At the end of 6 months, the patients who trained had a mean 28% increase in aerobic capacity and a 34% increase in muscle torque strength. They also had a mean 8% decrease in their resting heart rate (Br. J. Rheumatol. 1998;37:1338-42). There was no change in the controls.

Findings from another study, conducted by Dr. Lundberg and her colleagues, suggest that exercise may even be beneficial in early active disease.

In a study presented at the American College of Rheumatology last year, they found that creatine paired with exercise significantly improved muscle function over exercise alone. For that study, 18 patients were assigned to a combination program of creatine and exercise, and 19 patients to exercise alone. The patients assigned to creatine took a loading dose of 30 g/kg a day for 8 days and then a daily dose of 3 g/kg for 6 months.

At follow-up, the patients who took creatine had an average 13% improvement on a test of physical activity that included a 5-minute walking test and climbing stairs. That compared with an average 3% improvement for those in the control group.

Corticosteroid treatment remains the standard initial therapy for polymyositis and dermatomyositis, but physicians should keep in mind that it's not an evidence-based approach, she said. Controlled clinical trials of corticosteroids in these patients have never been conducted, so there are no data on optimal starting dosages, or on how long one should treat before attempting to taper, she said.

Most experts recommend starting prednisone at 40-60 mg daily for about 1 month, and then slowly tapering the corticosteroid while monitoring plasma creatine phosphokinase levels.

Dr. Lundberg, however, said she recommends following muscle function before tapering because muscle function returns more slowly than do normal levels of creatine phosphokinase, and the return of muscle strength may take more than a month.

Studies have shown that 75% of patients respond to corticosteroid therapy, but few recover muscle function fully, and there is a high rate of adverse effects.

Azathioprine, 2 mg/kg a day, can be added to the prednisone to decrease corticosteroid exposure; methotrexate, 7.5-25 mg/wk, also can be effective for patients who do not respond to prednisone.

Any patient who doesn't respond to corticosteroid treatment should have their diagnosis reevaluated before continuing treatment, with either a repeat MRI or a new muscle biopsy, she advised.

Cyclosporine has been shown to be as effective as methotrexate and may even be preferable for those patients with concurrent interstitial lung disease.

Experimental treatments for myositis include tacrolimus, which showed "impressive" results in a small, open-label trial of eight patients who were not responsive to corticosteroids and anti–tumor necrosis factor therapy. However, outcomes involving 13 similar patients at Dr. Lundberg's institution were not as favorable. Of those patients, three had some improvement, but not in muscle function, two worsened, and the rest did not respond. Moreover, muscle inflammation did not appear to be impacted. ■

Screen Lupus Patients for CV Risk Annually

LONDON — Patients with systemic lupus erythematosus should be evaluated on an annual basis for cardiovascular risk until such time as specific recommendations are formulated, Heiko Schotte, M.D., said at the Sixth European Lupus Meeting.

Results of procedures that detect coronary insufficiency, surrogates of atherosclerotic burden, and echocardiographic findings are often abnormal in SLE, but evidence to support routine screening is not currently available. "Therefore, based on the recommendations that have been proposed for other conditions associated with cardiovascular disease, we suggest annual assessment of traditional risk factors including diabetes mellitus, dyslipidemia, hypertension, smoking, and family history of premature coronary disease," Dr. Schotte said in a poster session at the meeting, which was sponsored by the British Society for Rheumatology.

If two or more risk factors are present, an exercise ECG should be done, he said.

The cardiac manifestations of SLE can involve almost all components of the heart—pericardium, myocardium, and valves—and pulmonary hypertension also often develops during the course of disease. Echocardiography also should be done each year to look for any of these abnormalities, even for patients who are asymptomatic, he said.

These recommendations must be confirmed in prospective studies, and should be enlarged to include other SLE-specific risk factors such as antiphospholipid antibodies and long-term corticosteroid therapy, said Dr. Schotte of the department of medicine, Muenster (Germany) University Hospital.

—Nancy Walsh