News
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******New method of cleansing the blood is bringing relief to patients.

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DALLAS--A "modest revolution" is bringing dramatic relief to some persons with antibody-caused disorders--conditions in which the body attacks itself.

Grouped as "auto-immune" diseases, these nerve-muscle disorders include myasthenia gravis, Guillain-Barre syndrome, rheumatoid arthritis and mutliple sclerosis, among others.

New treatment for these diseases, consisting of a method for cleansing the blood of antibodies, is being demonstrated here at Southwestern Medical School's General Clinical Research Center, a facility for human research dealing with some of the most perplexing medical problems.

Dr. Richard S.A. Tindall, assistant professor of neurology at the medical school and part of the team treating patients at the research center, will be speaking at 10:40 a.m. today in The University of Texas Health Science Center at Dallas' Gooch Auditorium on the blood-cleansing process. The treatment, called "plasmapheresis" or plasma exchange, involves slowly removing the blood from the body and replacing it without its antibodies. His talk is part of a week-long seminar on progress in human research at the center.

Auto-immune diseases may be prompted by a virus or by some other factor which interferes with the body's ability to suppress production of antibodies. These antibodies, which normally function to fight off infection and disease, are somehow set off to destroy body cells or to block nerve-muscle communication. Patients' symptoms may range from crippling to near total paralysis.

Tindall explains that sometime before birth, antibodies needed to fight infection and disease are produced by the fetus. In the process, a small amount of these antibodies go awry, even attacking the body's own tissue. But by the time of birth, the body is able to suppress all antibodies working against itself and the baby's immune system is then in order.

For some, however, something happens later in life to once again trigger these antibodies to destroy body cells and blockade nerve-muscle junctions.

Scientists do not yet know how to persuade the body to stop antibody production. But doctors can slow down the making of new cells--cells which produce antibodies--and in doing so can allow the body to repair damage done by rampaging antibodies. This cell reduction is done through drug treatment--drugs used otherwise on leukemia and other cancers to limit the number of new cells and hold growing cancers in check.

Drugs which reduce cell production are slow acting, however, and may take months or years to make an effect.

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It is plasmapheresis which is proving helpful in relieving patients of their symptoms in the meantime, says Tindall. Used in the United States for the first time two years ago in California, plasmapheresis quickly removes antibodies from the blood while drugs are slowly working. Pheresis is providing short-term relief while the drugs are being looked to for long-term sustained benefit.

Tindall and Dr. Jay Cook, assistant professor of neurology and pediatrics at Southwestern, are collaborating on a unique aspect of the treatment. Measuring and graphing the specific antibodies affecting each patient, they are able to adjust their therapy accordingly. They see the treatment as "opening a therapeutic window," says Tindall, giving the opportunity to see which antibody-caused diseases will respond to plasmapheresis and just how useful the treatment can be.

Patients are often referred to Tindall and Cook by area physicians after conventional treatments are exhausted.

The process of plasmapheresis involves three or four hours of continuously taking blood from the body and running it into a centrifuge where it is spun until the blood components separate by density. Heavy red blood cells pack first against the centrifuge drum. White blood cells settle in a layer next to them. And the plasma, which is lightest in weight, forms another layer. The plasma layer is siphoned off, taking with it the harmful antibodies posing the threat. The patient's own white and red blood cells are then added to a plasma replacement product and put back into the body.

This "pheresing"--a word that means removal--may be repeated several times to thoroughly cleanse the blood of antibodies until approximately 80 percent of the blood's antibodies are gone. While this will remove only 50 percent of the total number of antibodies in the body--the other 50 percent are within the body tissue--it is often enough to allow the patients to lose their symptoms, which usually involve paralysis.

The total process is repeated anywhere from one week to one month later, depending on how fast the body replaces its antibodies and how much of an effect the cell-reducing drugs are making.

Still in the experimental stage, plasmapheresis and the accompanying drug treatment must be "tailor-made" to suit the wide range of measurable antibody levels in different patients and to suit the varied rate at which antibodies are replaced by the body.

There are drawbacks, Tindall says. First, plasmapheresis has the potential of accelerating the rate at which antibodies are made, therefore use of the process could be counterproductive. This has not been the case for patients treated in the research clinic, however. Another consideration is that one out of 35 patients treated by the process has had antibodies reduced but did not improve. In this case the antibodies were not making the attack. Instead the attack was cell-mediated and body cells themselves were causing the destruction. Drugs must be relied upon for control in this instance.

Other risks include transfusion reactions, nausea, muscle cramps and tingling in the fingers. But these are transient and negligible, says Tindall.

Positive results have been seen in the research clinic on patients with myasthenia gravis and chronic Guillain-Barre, he says.

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In myasthenia gravis patients the antibodies attack areas where nerves stimulate muscles. Muscles stop functioning and symptoms of paralysis appear. The more antibodies that block the muscles, the more serious the disease.

Here plasmapheresis acts as a way of controlling the disease, putting it into remission, says Tindall, whose work is being supported by the Dallas-Fort Worth chapter of the Myasthenia Gravis Foundation, the Florence Foundation and the Muscular Dystrophy Association.

Patients referred to Tindall who have been diagnosed as having myasthenia gravis have often not benefited from the conventional use of steroid drugs and the removal of the thymus gland. However, plasmapheresis has also been used with success on myasthenia gravis patients who deteriorate rapidly before the use of the other therapies, and on patients who deteriorate because of other therapies.

Successful results have also been seen at the clinic in Guillain-Barre syndrome patients, Tindall says, as well as two patients diagnosed as having chronic or recurrent Guillain-Barre.

Guillain-Barre is a disease in which huge amounts of antibodies attack the nerves to the point the nerves stop functioning. This is a one-time thing--once the attack is over the body will almost completely repair itself. Yet this attack by antiobodies can prove fatal, in about 10 percent of cases, especially for those without access to a respirator.

Tindall calls this disease rare and says he sees approximately one patient every three months with Guillain-Barre. But his use of plasmapheresis has shown that it can be helpful in limiting the disease and in helping the patients get better faster.

In chronic Guillain-Barre the body is making antibodies against the nerves constantly, but at low levels. Here again pheresis has been helpful, and in fact has made dramatic changes in the patient's ability to move about freely.

Plasmapheresis has been tried on multiple sclerosis and polymyositis patients with some success. In multiple sclerosis there is no proven treatment to date. Because of the nature of the injury to the central nervous system, very modest repair by the body usually occurs. "Therefore, we can expect only modest improvement from plasmapheresis," says Tindall.

But Tindall adds that with MS there is a possibility of preventing the disease from progressing with plasmapheresis. To patients with MS, a potentially totally disabling disorder, stopping progression is very desirable and worth the risks of pheresis and drugs, says Tindall.

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