

MEDICAL UPDATE MEMO
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MS RESEARCH PROGRESS

Carefully and painstakingly during 2002, MS researchers continued to find pieces of the MS puzzle and fit them together to build a clearer picture of this complex disease. This better understanding of MS will lead to even more effective forms of treatment.

The Multiple Sclerosis Society of Canada helped advance this work by providing \$5.1 million to the MS research program which funds innovative research projects and provides fellowships and studentships to attract young scientists to the MS field.

Thirty-two research projects were funded in 2002. They ranged from basic cellular research targeted at teasing out how parts of cells interact to applied health research focused at finding out the causes of MS fatigue.

At the same time, projects funded by the MS Scientific Research Foundation – which is related to the MS Society of Canada – yielded encouraging initial results. The first five people to receive bone marrow transplants in an effort to halt their MS came through the procedure safely. Over a six-year period 24 people with rapidly progressing MS will receive bone marrow transplants and an additional 12 people with the same kind of MS are serving as the control group. Once all the results are in, researchers should be able to determine if bone marrow transplantation is a safe and effective treatment for people who have a particularly aggressive type of MS.

The MS Society research program is making a difference, as Dr. Timothy Kennedy, Montreal Neurological Institute, emphasized in a letter to a donor:

“I believe it is important to point out how critical support like yours is to our research program...Funding from the MS Society of Canada provided key support that allowed my lab to initiate and pursue work related to multiple sclerosis. Without the support provided by the MS Society, my laboratory simply would not have had the funds to make this happen.”

Myelin and nerve fibres

Almost half of MS Society supported research projects are targeted at finding ways to regrow or repair myelin, the vital insulating cover of nerve fibres, that is damaged by MS attacks.

In Montreal, Dr. Kennedy built on his exciting finding that a group of proteins called netrins continue to be made in the adult central nervous system. This finding has implications for developing a therapy for MS since netrins, as Dr. Kennedy has recently confirmed, are required for myelin-making cells to reach their correct destinations within the central nervous system. Further research will focus on how myelin-making cells work and how they might be encouraged to remyelinate damaged parts of the brain and spinal cord.

Immune system research

Cells from the immune system initiate the attack on myelin so it is vital to find out how and why this happens and to figure out ways to stop it. About one third of MS Society funded research projects are in the field of immunology.

Two groups of researchers – one team headed by Dr. Jack Antel at the Montreal Neurological Institute and the other headed by Dr. Katerina Dorovini-Zis at the University of British Columbia – are making headway in finding out why a barrier of specialized cells isn't doing its job in keeping immune system cells out of the central nervous system. They have developed artificial blood-brain barriers and are now able to study in detail under what circumstances cells are able to move through the barrier. Restoring the blood-brain barrier to its previous role of keeping dangerous cells out of the central nervous system would be a major therapeutic step forward.

Other highlights

- The MS Scientific Research Foundation announced funding of \$5.1 million over three years for phase three of the Canadian Collaborative Project on Genetic Susceptibility to MS. In the previous phases, the study has demonstrated that the genetic impact on the cause of MS is complex and determined by many genes having a small but important individual effect. It has also found that environmental factors which act at the large population level influence whether someone who is genetically susceptible will develop MS. During phase three, the investigators will look at environmental factors including early life events, exposure to sunlight and patterns of migration as well as continue the search for “candidate” genes linked to MS.

- An MS Society funded workshop examined whether Vitamin D could impact MS. Organized by Dr. George Ebers, University of Oxford and former director of the MS Clinic in London, Ont., participants looked at ways they could collaborate on various studies to move the issue forward. There have been some observations that MS occurs more frequently in areas further from the equator that receive less sunlight (the major source of Vitamin D) much of the year.
- Clinical trials continued in Canada on a variety of existing and potential therapies. Teriflunomide (Arava), a commonly-used oral medication for rheumatoid arthritis, is being tested for relapsing-remitting MS at eight clinics. The two types of interferon beta-1a (Avonex and Rebif) are being tested in head-to-head studies for their effect on brain atrophy, and two doses of interferon beta-1b (Betaseron) are being studied in a massive clinical trial involving 2,000 people with relapsing-remitting MS in North America and Europe.
- Researchers in the U.S. and Europe found in animal studies that cholesterol-lowering drugs had positive immune regulatory effects in the animal model for MS. Studies involving people with MS will be needed to determine if the drugs may be useful in treating MS. One small study is underway.
- The health research program continued to grow with five projects underway in 2002. Two of the new projects are an examination of the cost effectiveness of current MS drugs and a study of the potential causes of MS fatigue, one of the most common and debilitating symptoms of MS.

Thanks to the generous support of MS Society of Canada donors, chapters and divisions, Society and Foundation supported investigators continued to add to the overall understanding of MS. By combining scientific disciplines and using the best tools possible, the pieces to the puzzle that is MS are coming together.

Ask MS Code

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National Research Department
National Communications & Social Action Department