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Multiple Sclerosis: Looking From Cause to Cure

Ma’ayan Dagan

Massachusetts Academy of Math and Science

Multiple sclerosis is nerve wracking. The disease that affects 400,000 Americans (National Multiple Sclerosis Society, 2007) is a catalyst for both physical and emotional difficulties. Multiple sclerosis, derived from Greek, means “many scars,” and refers to scar tissue created in a healing attempt following repeated attacks on the body by its own immune system. The symptoms, brought about by damage to the nervous system and neuron connections, comprise problems with functions such as walking, vision, muscle performance, mental stability, and touch perception. Sadly, a percentage of persons suffering from multiple sclerosis are confined to wheelchairs for a part of their lives in the absence of stability and control.

This autoimmune disease is still one of the least-understood diseases in a medically and scientifically accomplished world. Much of the knowledge that exists has been used to experiment in finding a cure. Right now, no cure exists, only treatments, including Interferon Beta 1a and 1b, Mitoxantrone, and Natalizumab. These drugs, which directly attack autoimmune dysfunction, have been shown to reduce lesions (abnormal tissue developments found on the brains and spinal cords of MS-affected individuals), improve immune system functionality, and reduce or delay relapses of the disease. In terms of living, this translates to more independence and less physical pain for people living with MS. Fortunately, despite the limits of current medicine, a large number of MS sufferers are able to enjoy life given the right environments and sometimes the addition of alternative therapy such as yoga or other physical activity and a healthy lifestyle. Still, no cure has been discovered.

One of the most important branches of MS research is the pursuit of discovering the cause of the disorder. Moreover, the greater insight into the root of the disease we have, the plainer it will be to develop a solution to the problem. Numerous foundations exist with the intent of funding research, and it appears that it is only a matter of time before MS will not be feared. Investigations into the disease are atop the to-do lists of top scientists as well as news headlines as we advance into a new age of technology.

For decades, a cure for MS has been pursued with the belief that symptoms are the result of demyelination, a destruction of the myelin sheaths that insulate connections between neurons. Demyelination is responsible for decreased capacity in a multitude of neurological functions. Despite the debilitating effects of myelin destruction on the central nervous system, it has recently come to light that axonal loss may be more directly related to the neurodegeneration that is the mark of multiple sclerosis (Correale, Meli, & Ysraelit, 2006). Fresh knowledge about
these pathogens has prompted innovative development in the medical field, improving life quality in MS patients. Medicinal engineering has revisited neurological observation techniques (conventional magnetic resonance imaging) for MS and has brought about processes including functional MRI and proton magnetic resonance spectroscopy, which in turn allow for facilitated recognition of disease progression.

As axonal degeneration is being targeted, so is myelin destruction. In a recent study at the University of California, Irvine, Dr. Michael Demetriou and his colleagues found a link to the demyelinative aspect of MS through an observation of genetics in mice. The scientists conducting the research identified a gene that plays a role in the glycoprotein production pathway (glycoproteins are glucose molecules found on proteins that make up the cell membrane). The gene produces an enzyme called Mgat5, which makes the last steps in the pathway possible. When the scientists mutated this gene so that enzyme production was inhibited, they found the mice developing symptoms similar to those found in MS. Dr. Demetriou then proceeded to compare the neurological systems of normal mice and those with the modified Mgat5 gene; he found that the untouched mice were neurologically healthy. Finally, it was concluded that glycoproteins and the Mgat5 gene play an important role in immune and neurological function and are linked to multiple sclerosis in particular (Kranz & Gwosdow, 2008). Hopefully, future research will show that the results hold true in the human systems.

I am among many who are counting on the commitment of today’s doctors and researchers to continue to delve into the intricacies of multiple sclerosis. My mother is one of those living with MS. She will never deign to say that she is suffering from it, but the effects of neurodegeneration are clear whenever she complains of fatigue or numbness in her limbs, or returns to the neurologist to discuss the results of her latest MRI tests. It is because so many people today can identify with the pain caused from MS that we have those willing and determined to move forward in that area of science. It is not a case of if; it is only a question of when.

Works Cited


http://whatayear.org/01_08.html

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