MULTIPLE SCLEROSIS

Overview:

Multiple Sclerosis (MS) is a chronic degenerative disease of the central nervous system. MS occurs in women twice as often as in men. Although the cause for MS is not yet certain, there is increasing evidence that a combination genetic, environmental, and immunologic variables play a role in the onset and development of the disease. Recent studies suggest that an infectious agent of long latency, possibly the Human Herpes Virus, Type 6 (HHV-6) may play a role in the development of MS. This virus contains proteins that look similar to the molecular structure of myelin, the protein on the surface of our nerve cells that provides electrical insulation and allows proper functioning. As our body's immune system fights the virus, it may inflict unintended damage to the structurally similar myelin, leading to the development of MS.

MS affects the nerve cells primarily in the brain, the optic nerve, and the spinal cord. Affected cells experience a process called "demyelination" - referring to the removal of the protective covering of a nerve cell. Once stripped of protective coating, electrochemical functions that facilitate nerve conduction are gradually diminished and eventually lost.

The onset of MS can be sudden. An attack may be brief, lasting as little as a few weeks. Early symptoms include inflammation of the optic nerve, weakness of the eye muscle, or *tingling sensations* or *numbness* experienced in hands and arms. The classic definition of MS is "two or more central nervous system events, separated in time and space (i.e. anatomic location)". However, modern medicine, including the use of MRI, together with a series of tests that measures electrical activity in response to sensory stimuli (Evoked Potentials), now allow for a firm diagnosis during the first "event".

The only predictable variable in MS is the unpredictable nature of the condition. MS frequently does go into remission. For some, remission can last a lifetime. For others, MS progresses quickly, leading to death in a few months or years. For the majority of individuals with MS, the degree of disease progression falls between the two extremes.

Impact on Life Underwriting:

The extra mortality caused by MS mainly evolves from debility and infections caused by the neurological deterioration. With modern medicine, the years of survival following diagnosis continues to increase; the median rate of survival post diagnosis has now increased to almost 40 years. S*uicide* is also a significant risk factor, especially for the very young.

Ratings for MS are determined by: the age of onset; the frequency, duration, and severity of attacks early in the disease and any subsequent changes in the frequency, duration, and severity of attacks; the sex of the proposed insured; the type of symptoms experienced, and the degree of neurological impairments. As MS follows an unpredictable course, the longer the condition has been observed, the more favorable are underwriting results. Underwriting is most favorable for individuals with MS who have minimal disability 5 years after onset; who show complete and rapid remission of initial symptoms; who are under age 35 during the first attack; who only experience one symptom during the first two years; who have only a single episode during the first year; and whose event episode is of short duration. Underwriting is less favorable for those who present with many symptoms during the first attack (i.e. are "polysymptomatic"), have five or more attacks during the first two years, and whose symptoms appear to have a cerebral origin, such as ataxia or tremor vertigo. After becoming bed-bound, life expectancy is between 2 and 7 years; such cases are uninsurable.

As the rate and severity of disease progression in an individual can be determined only over time, many underwriters will encourage postponement of a formal application for life insurance until at least one year following initial diagnosis or one year after the date of remission of the most recent attack to qualify for the best rates. Premiums will be higher for a recent diagnosis. Severe cases with permanent total disability are declined. SB 05/25/2001

Diagnosis	Common Symptoms	Onset of Symptoms 2 Years or Less	Onset of Symptoms 3 to 5 Years	Onset of Symptoms 6 Years +
Mild	Infrequent attacks, long periods of remission, no disability.	Table 6	Table 2 - 4	Standard to Table 2
Moderate	Attacks with increasing frequency/duration with some residual neurological impairment but individual is fully functional.	Postponed Possibly +/- Table 16	Table 6 - 8	Table 4 to Table 6
Severe	Individual is wheel chair bound or bed ridden, incontinence, complete loss of independence.	Uninsurable	Uninsurable	Individual Consideration
Current Attack	Varies.	Postponed	Postponed	Postponed