Good research paper on multiple sclerosis

Business, Company

Multiple sclerosis (MS) is commonly called encephalomyelitis disseminata or disseminated sclerosis and is one of the inflammatory diseases for which the developments of the insulation continues to cover the nerve cells within the brain as well as spinal cord above which they are damaged. The damage proceeds to disrupt the overall ability of the nervous system parts to communicate which results in the range of symptoms and signs. They include mental, physical, and psychiatric problems (Herndon, 2003). MS also takes a number of several forms where the new symptoms will either occur through the isolation of attacks such as relapsing forms and the building up across over time (popular as progressive forms).

In between the attacks, the symptoms have the opportunity of completely going away even though the permanent neurological problems continue occurring as there are disease advancements. Even though the ultimate cause for this remains unclear, the fundamental mechanism is perceived to be through the immune system destruction or the myelin-producing cells failure (Scolding & Wilkins, 2012). The proposed outcome for the same includes the environmental factors like infections and genetics. MS is normally diagnosed on the basis of presenting symptoms and signs as well as outcomes of medical tests in support of the same.

People with MS develop many neurological signs or symptoms for which the visual, autonomic, sensory, and motor problems are the most frequent. The major symptoms can be determined through the lesions locations in the nervous system while still including the loss of sensitivity and the changes in sensation like muscle weakness, pins and numbness or needles, tingling, muscle spasms, pronounced reflexes, or moving difficulty (Robinson, 2013).

The difficulties are accompanied with the coordination and ataxia (balance) and problems with swallowing or speech as well as visual problems (double vision, optic neuritis or nystagmus).

In some cases, the patients may feel tired, chronic pain or acute, and bowel and bladder difficulties within the same consideration. Emotional problems and difficulties thinking such as unstable mood or depression are common. Uhthoff's phenomenon can develop as the symptoms worsen due to the overall exposure to temperatures which are higher than usual while Lhermitte's sign is based on the electrical sensation running down the back while bending the neck which are all characteristic to MS (Weiner & Stankiewicz, 2012). The overall disability and severity measure is on the grounds of an expanded disability status scale with measures like multiple sclerosis functional composite in increased usage in research.

The main MS cause remains is unknown even though it is observed that it is for this result that genetics and some environmental factors combination like infectious agents. The theories of this aspect combine such data to the likelihood of explanations even though none is proved definitive (Herndon, 2003). MS is mostly common in areas with populations of northern European as well as the geographic variation which are simply reflective of the global distribution of such high-risk populations. The decreased exposure to sunlight results to decreased production of vitamin D which is also put across as part of the explanations.

Changes in the HLA region of Chromosome 6 increase the MS probability. However, MS cannot be considered to be hereditary disease where various genetic variations are translating to increased risks. Further, many microbes

are proposed to be MS triggers even though they are confirmed. At an early age, they move from a given location within the world into others which also alter the people’s subsequent risks for MS. The explanation in place for this is based on the understanding that various kinds of the infection are produced through the widespread microbes as compared to the rare ones which also have a relationship to the disease (Kalb, 2011). Smoking is also listed as an independent risk factor regarding MS. Stress is also a risk factor even though evidence supporting this remains weak. The association to toxins and occupational exposure —such as solvents—is evaluated even though there are no clear conclusions which are reached.

Multiple sclerosis is diagnosed on the basis of presenting symptoms and signs, in a combination with the supporting laboratory testing and medical imaging. It is also difficult to fully confirm on this mostly on the symptoms and signs which are similar to subsequent medical problems. McDonald criteria focus on the radiologic, laboratory and clinical evidence for the lesions in different areas and across different times and is the part of the commonly engaged diagnosis methods with the Poser criteria and Schumacher for the extensive historical significance (Scolding & Wilkins, 2012). Even as the criteria allows for non-invasive diagnosis, there are various states which the most definitive proof remains the biopsy or autopsy and the lesions are typical of MS as detected.

The clinical data may remain sufficient for the MS diagnosis in the event that the individual has separate neurologic symptoms episodes characteristic to the disease. In the instances of seeking medical attention for single attacks, other forms of testing are necessary in addressing the diagnosis. The

relevant diagnostic tools include neuroimaging and the analysis of evoked potentials and cerebrospinal fluid (Robinson, 2013). The brain and spine magnetic resonance imaging also show a number of areas for the demyelination (plaques or lesions). Gadolinium is intravenously administered as part of the contrast agents highlighting active plaques (Iezzoni, 2010). Through elimination, there is a demonstration of the historical lesions existence which is not linked to the symptoms in the evaluation moment. Ongoing research is on the search for more convenient, tolerable, and effective treatments in relapsing-remitting MS. The therapies creations for such progressive subtypes are part of the neuroprotection strategies aimed at developing effective symptomatic treatments. Across the past decade, there was the approval of various oral drugs that were aimed at gaining the frequency and popularity of the usage (Weiner & Stankiewicz, 2012). Further, the oral drugs within the scope of investigation including laquinimod, is in the third phase III trial. Studies aimed at improving the efficacy as well as easing the application of the already existing therapies keep occurring. This will be an inclusion of the new preparations use for the interferon-β-1a PEGylated version that it is targeted for the less frequent doses among the diverse impacts.

The monoclonal antibodies are also raising high interest levels. Alemtuzumab, CD20 and daclizumab monoclonal antibodies like ofatumumab, ocrelizumab and rituximab have continued to show various benefits for which the under studies are based on the potential treatments. The due application is accompanied by potential appearance of the dangerous adverse effects where the most significant opportunistic

infections are due (Herndon, 2003). The related elements to these investigations include the development of tests for the JC virus antibodies that could also develop into the determination of the aspects that are at more risks of being involved in the development of progressive multifocal leukoencephalopathy as they take natalizumab. In the future, the monoclonal antibodies are probably having roles in treatment of the disease as it is believed that they will be minimal due to the levels of risks linked to them.

References

Herndon, R. M., (2003) Multiple Sclerosis: Immunology, Pathology, and Pathophysiology. New York: Demos Medical Publishing

Iezzoni, L. I., (2010) Multiple Sclerosis. New York: ABC-CLIO

Kalb, R. C., (2011) Multiple Sclerosis, 5th Ed.: The Questions You Have-The Answers You Need. New York: Demos Medical Publishing

Robinson, I., (2013) Multiple Sclerosis. New York: Routledge

Scolding, N., Wilkins, A., (2012) Multiple Sclerosis. New York: Oxford University Press

Weiner, H. L., Stankiewicz, J. M., (2012) Multiple Sclerosis: Diagnosis and Therapy. New York: John Wiley & Sons