Travel Medicine: A Case of Multiple Sclerosis

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ABSTRACT

Travel medicine concerns the in depth evaluation of multiple and different environmental and personal factors impacting on travellers’ health. Those with the disease of multiple sclerosis (MS) however, require different and more intensive health needs to improve their quality of life whilst travelling. MS is chronic, progressive and disabling. Therefore, it is crucial to understand the symptoms experienced by travellers with MS in order to enhance quality therapeutic care provided by carers and the traveller.

Travelling patients affected by MS need to be very cautious whilst travelling. This includes minimising their exposure to heat, having a healthy nutrient based diet and limiting their alcohol consumption. Due to the rapid change of environmental conditions whilst travelling, patients need to avoid situations of stress that may lead to later depression and as a result, the experience of fatigue. Therefore, patients should have a clear understanding of their needs and the risk factors associated with MS. They should also not try to push the boundaries of their health or energy capacity as such things lead to the exacerbation of MS symptoms. Above all, before travelling or intending to travel, patients should seek consultation with a physician to understand the conditions that they may experience while travelling and co-evaluate them with their health, needs, requirements and preparations. In regards to this, all travel agents have facilities for MS patient use. The government also has established and implemented policies for MS travelling patients, safeguarding their overall health and wellbeing.

Key words: Multiple sclerosis, travel, travel medicine
Introduction

Travel medicine is a fundamental discipline addressing the complex ecology of travellers. As geographical regions greatly differ, travellers become more susceptible to being affected with multiple health factors. In some situations, such affects lead to critical health conditions where emergency medical attention must be available to meet the health needs and requirements for patient recovery(1). To avoid such situations, it is important that prior to travelling, MS patients undertake a travel health examination assuring their health compatibility. To support this, further clinical evidence suggests that MS patients are as equally susceptible to implications that relate to travel.

Main Objective of the Study

The objective of this study is to further explore and evaluate previously suggested implications of MS. These will be further applied in this study to address the measures that can be undertaken in future situations of MS travellers through the evaluation and counterbalancing of the negative and positive effects that may be experienced by MS patients during travel. This will enhance precautions that can be undertaken to enhance the holistic welfare of patients. MS is a neurological disease that affects the nervous system as it damages the myelin sheath of neurons(2). This results in the inability of the nervous system. Impairment of the nervous system is caused by damage to the myelin sheath of neurons which acts to enhance the neurological transmission of electrical information travelling to and from the brain and body. Hence once damaged so is movement, sensation and cognition(1).

Although the condition or severity of each MS patient’s symptoms differ, care and management of the disease is crucial. This includes taking medications, therapy, lifestyle, and diet. Results of managing and caring for patients’ health and well-being relies on appropriate timing of implementing engagement in essential therapeutic activities. Statistical evidence indicates that females are more susceptible to MS(3). It is also claimed that MS is caused by both genetic and environmental factors.

Methodology

In this study, MS is considered through the presentation of extensive information obtained from various primary and secondary sources which include; journal articles, websites, books and research papers published over the years by physicians, including clinical practitioners. The combination of resources presented in this study presents efficient information on MS, and applies and evaluates information that has been put

Figure 1: A diagram showing how nerve cells are affected by MS
Understanding Multiple Sclerosis

Multiple sclerosis (MS) is a chronic autoimmune disease that is a common disease of the nervous system affecting people of all ages around the world (5). However, it commonly affects people in higher latitudes and females within the age of 45-54 years in comparison to males.

Despite the fact that it is not inherited but involves genetic susceptibility, early discoveries of the disease were made in the 19th century where scientists were not really sure of the nature of the disease. The first recognizable case of the disease was the case of her Majesty Queen Victoria’s cousin because he documented his signs and symptoms in his diary (2).

In 1868 Jean Martin made his description of the disease when he was attending to a patient. He tried to establish a treatment for the disease and was frustrated because it was thought to be due to the resistance of drugs. However, it was due to the lack of knowledge on the pathology of the disease. The first drug treating MS symptoms was discovered in 1993. The drug was interferon beta-1b and was approved by the Food and Drug Administration (6).

Factors associated with the spread of MS

Causes of the disease are not really known but factors that are associated with MS include an immunological factor where the immune system attacks Myelin coating that is normally based around the nervous system. When the myelin coating is destroyed this causes some malfunction of the nervous system, leading to MS (7). Current research is still exploring why this happens and how to prevent further pathology.

Environmental factors indicate that people who are geographically far from the equator are at greater risk of acquiring MS because they do get enough sunlight which acts as immunity to the disease. Smoking has also been suggested to be one of the factors that lead to the acquirement of the disease. If an MS patient stops smoking, the symptoms of MS are lowered (8).

Regarding infectious factors, bacterial infections in children indicate that children can develop the disease in later years as supported by research. Infections may include Chlamydia, Canine Distemper among many others (2).
Genetic factors of MS are hereditary. Studies have indicated that if one has a close relative who has MS, there is high risk of also being affected or being a carrier. Some families may have some genes that are at a higher risk of reacting with ecological conditions than others(9).

Some of the risk factors associated with MS include; ethnicity, age, gender, climatic conditions, smoking, lifestyle, and family history among many others. The diagnosis for the disease is a combination of different techniques such as tests, MRI and spinal tap. All tests assist in establishing the correct diagnosis which assists in prescribing the relevant and correct medication, and the implementation of suitable therapeutic treatments(2).

There is no cure for MS. However, medication is normally prescribed for treatment. Medication slows down the symptoms and progression of the disease. The treatment given to patients may include medication and therapy that will assist in slowing down the effects of the disease(10). However, as symptoms and severity of the disease varies from one patient to another, so does the treatment as medication is normally based on the types of symptoms the patient experiences.

Medications treating MS Symptoms

Different symptoms require different medication. There are those for physical treatment such as painful muscle stiffness while others are modified drugs that assist in controlling the rates of relapse in the disease and the severity of attacks(1). Occupational and physical therapy is an important factor of treating MS patients.

(See Figure 3 next page)

Travel Medicine

Traveling for patients with MS may be difficult and stressful causing complications to the patients’ health. Neurologists have indicated that this should not occur and that patients’ medical conditions should not be an issue causing travel restrictions. For the patient to not have their medical condition or symptoms restrict their traveling or be an issue, some planning ahead is effective(6).

It is essential to carry the right medications, in the right amount, and in the correct storage while traveling. It is also vital to communicate with a physician to ensure that you are fit to travel and find out the requirements for the storage of medications. The physicians should issue a travel medicine certificate with a medical history of the patient, indicating the type of medicine that should be taken with correct dosage and time which is useful in times of emergency.

Starr(7) suggests that it is important to make pre-travel inquiries on the geographical area patients are visiting to make sure they have necessary facilities such as refrigeration and if there is a medical center nearby in case of emergency or need. The contacts of the patients’ doctors should always be accessible if there are any medical related inquiries; it becomes easier in cases of emergencies. It is also advisable for the patients to carry a flash drive that holds all their medical records.

Patients with MS should avoid risk factors that can lead to aggressive symptoms such as heat, fatigue, stress, and depression(4).

In modern times things have changed and many traveling agencies are making special arrangements for people with disabilities and various illnesses. MS patients should make arrangements with travel agents that adequately provide support services to meet MS patient’s health and wellbeing needs. Prior to travel, it is recommended for travel agencies to have the passengers’ updated medical records. By establishing this, it is easier to distinguish travelers that require special care and meet their needs.

The importance of travel medicine

Travel medicine practitioners should have an evaluative awareness campaign to be put in place to assist in educating MS patients about how to travel safely whilst ill(9). Travel medicine practitioners should work collaboratively with multidisciplinary health institutes and governments to provide support for MS patients(9).

Prior to travelling, patients need to seek consultations from a physician to make sure that they get all the details and advice that they will require during their journey(7). During consultation, it is important for patients to give all their correct travelling details to the physician to receive correct medications and advice according to the environmental conditions of the geographical area they are visiting.

Travel agencies should be equipped with necessary requirements needed by MS patients while they travel. This will increase the efficiency in travel medicine. These agencies should ensure their patients are first priority with regards to providing healthcare as well as mobility facilities such as wheelchairs(4).

Clinics should be equipped with vital medical resources essential in addressing emergent problems. This is compounded by the realisation that conditions tend to worsen with time. This may include the development of severe symptoms caused by various reasons such as changing climates, diets, fatigue, stress and depression(8).

Providing these services during traveling can aid in dealing with emergency cases. This would also ease the ensuing tension that has diverse implications on other passengers as well as patients(7).

During travel it is equally important for patients to consult with physicians in case of any changes in their symptoms, so that they can ensure they are safe and can be guided on how to stay healthy(8). Understanding the advancement of their condition aids in timely verdict making, regarding measures assumed to counter any depressing effects.
Figure 3: A table indicating medications used in reducing MS symptoms

<table>
<thead>
<tr>
<th>Class</th>
<th>Mechanism of Action</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recombinant interferons</td>
<td>IFN-beta has many effects on the immune system. Exact mechanism of action in MS unknown.</td>
<td>Interferon-beta-1b, Interferon-beta-1a</td>
</tr>
<tr>
<td>Altered Peptide ligands</td>
<td>Ligands either templated on sequence of myelin basic protein, or containing randomly arranged amino acids (e.g., ala, lys, glu, tyr) the structure resembles myelin basic protein. Believed to be an antigen that plays a role in MS. Binds to T-cell receptor but do not activate the T-cell because they are not presented by an antigen-presenting cell.</td>
<td>Glatiramer acetate, MBP 8298, Tiplimotide, AG-284</td>
</tr>
<tr>
<td>Chemotherapeutic agents</td>
<td>Immunosuppressive, MS belived to be an auromimmune disease. Chemotherapeutics that suppress immunitycan improve MS.</td>
<td>Mitoxantrone, Methotrexate, Cyclophosphamide</td>
</tr>
<tr>
<td>Immunosuppressants</td>
<td>Act via mechanisms to dampen immune response.</td>
<td>Azathioprine, Teriflunomide, Oral Cladribine</td>
</tr>
<tr>
<td>Corticosteroids</td>
<td>Induce T-cell death and may up-regulate expression of adhesion molecules in endothelial cells on the lining walls of cerebral vessels. Also decrease CNS inflammation.</td>
<td>Methylprednisolone</td>
</tr>
<tr>
<td>Monoclonal Antibodies</td>
<td>Bind to specific targets in autoimmune cascade that produces MS, e.g., bind to activated T-cells</td>
<td>Natalizumab, Daclizumab, Altemtuzumab, BMS 188667, E-6040, Rituixinab, M1 MAbs, ABT 874, T-0047</td>
</tr>
<tr>
<td>Chemokine Receptor Antagonists</td>
<td>Prevent chemokines binding to specific chemokine receptors involved in attraction of immune cells in CNS of MS patients, and inhibiting immune cell migration into CNS.</td>
<td>BX-471, MLN-3897, MLN-1202</td>
</tr>
<tr>
<td>AMPA Receptor Antagonists</td>
<td>AMPA receptors bind to glutamate, an excitatory neurotransmitter, which is released in excessive quantities in MS. AMPA antagonists supresses damage caused by glutamate.</td>
<td>E-2007</td>
</tr>
<tr>
<td>Recombinant Human Glial Growth Factor (GGF)</td>
<td>GGF is associated with the promotion and survival of oligodendrocytes and protect myelin sheath covering axon.</td>
<td>Recombinant Human GGF2</td>
</tr>
<tr>
<td>T-cell Receptor Vaccine</td>
<td>Mimic part of receptor in T cells that attack myelin sheath, which activates regulatory T cells to decrease pathogenic T-cells.</td>
<td>Neuro Vax</td>
</tr>
</tbody>
</table>
Other practitioners in the area of destination can also keep contact with the patients’ physicians at home to communicate on the progress and changes in patients symptoms. This can assist in providing very insightful understanding by patient’s physicians on elements of the patient’s ailment with regards to the environment of their new destination(2).

These measures are very beneficial as physicians have a better understanding of the impacts of multiple factors to patients residing in their areas. This knowledge allows physicians to provide adequate advice to future patients(7).

All countries should provide adequate education to travellers, ensuring MS patient travellers’ health needs are considered. Different health centers around the world should be established with the specialty in MS. They should have all the facilities that are needed in ensuring that MS patients’ health needs are met. The development of health facilities in health centers and the establishment of specialty in MS around the world will assist, and expand further research exploring where in the human body acceleration of MS symptoms occurs and the reasons behind symptom acceleration. Travel medicine is a very important part of establishing a world that is free and easy to survive in, because it gives patients a chance to go along with daily activities and careers. The help of many organizations that deal with sick people makes it easier for patients to be comfortable in their daily activities(2).

MS patients should rely on themselves in making an effort to stay healthy and putting into practice the advice they are given from their physicians. This would allow patients’ health to improve following the management plan developed by their physicians(9).

Conclusion

As indicated in this study, MS is a disease that affects the nervous system. It is very dangerous, progressive and chronic. The main cause of MS remains idiopathic. However, the risk factors associated with MS include; smoking, low levels of vitamin D, excessive exposure to heat, excessive alcohol consumption, and many others factors. These factors contribute to the development of the disease and the exacerbation of symptoms. Travel medicine is an area of medicine that takes care of travellers who may or may not have medical or health ailments such as MS.

Travel medicine and its advances around the world have made it easier to travel safely and effectively without any fears of difficulties or complications. Information regarding travelling is very accessible and available on the internet since there are websites on various diseases that offer advice on traveling tips for travellers and travelling MS patients. Travel agents have websites on various diseases that offer advice on traveling tips for travellers and travelling MS patients. The help of many organizations that deal with sick people makes it easier for patients to be comfortable in their daily activities(2).

They should also ensure that there are facilities that have been put in place to advise MS patients on how to travel safely and take care of their health while travelling. There are also policies put in place to ensure that all organisations that deal with traveling or hosting tourists have comprehensive medical care, taking care of the needs of any traveling MS patients. The implementations discussed in this study will assist in improving the quality of life of traveling MS patients.

References


