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Research Article

MULTIPLE SCLEROSIS IN SAUDI ARABIA: REVIEW OF EPIDEMIOLOGY AND RISK FACTORS.

Saif Abadi Alzahrani^{1*}, Lama Muhaysen Almuhsen², Khawlah Khaled Alhatlany²,
Ashwaq musaad almutairi², Haneen abdullah alghasham², Shoog Fahad Alfadhel³, Safa
Saeed Ali Alghamdi⁴

¹Medical intern, faculty of medicine, Al-Baha university, Saudi Arabia., ²Medical intern, Unaizah college of medicine, Qassim university, Saudi Arabia., ³Medical student, Collage of medicine, King Saud Bin Abdullaziz for Health Sciences, Saudi Arabia., ⁴Public Health Student in Faculty of Applied Medical Sciences - Albaha University, Saudi Arabia.

Abstract:

Multiple sclerosis (MS) is a neurological disorder that usually affects young adults in their reproductive years mostly between 20 and 40 resulting in neurological symptoms that may cause a major disability. The disease involves demyelination, inflammation and degeneration of the neurons causing pain, paraesthesia and other neurological symptoms. The diagnosis is usually made by a physician using criteria for diagnosis. The rates of prevalence and incidence of MS has been increasing in the last decade, this can be multifactorial. In the middle east, it has a high prevalence reported in the literature. MS has no known etiology, but risk factors include, family history, young age, vitamin D deficiency, and fast food consumption. Consumption of coffee was found to be protective from MS, where the incidence was lower in those who drink coffee daily. The awareness regarding MS in Saudi Arabia is low among the affected individuals and the general population, while good knowledge and awareness are necessary for a better management of the disease. The society knows little about MS and more attention should be paid to the condition for a better prevention and an educated society.

Key words: Multiple sclerosis – epidemiology – awareness – risk factors – Saudi Arabia.

Corresponding author:

Saif Abadi Alzahrani

Address/ Qara, Al-Baha, Saudi Arabia – 65796.

Email/ alzahrani85@gmail.com

Phone number/ +966 502574291.

QR code



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INTRODUCTION:

Multiple sclerosis (MS) is the commonest non-traumatic disease which can lead to disability among young patients, it is due to inflammation, demyelination, and neurodegeneration within the central nervous system [1]. The onset is usually found among young adults and diagnosis commonly being made between 18 and 40 years of age [2]. MS leads to abnormalities in sensory, motor, and cognitive perception, the course of these abnormalities can be permanent, temporary, or progressive. Therefore, adverse effects of multiple sclerosis are notable and challenging, MS can have effects on employment, relationships, general well-being and the quality of life of the patient and family [3]. MS prevalence in Middle East vary from region to region, it ranges and can be low or high. The different ranges are dependent on the study setting and the type of population being studied [4]. Before, we believed that the Gulf region has a low prevalence of MS, but recently, reports have revealed the increase in the prevalence and incidence of the disease. However, there are still no registries for MS in the Gulf region [5]. In Saudi Arabia, studies that are available are small and mostly hospital-based and yet there is still no regional or general national study that investigated the prevalence of MS among Saudis, although some have estimated the prevalence as 30 cases of MS per each 100,000 individuals [6]. It has also been estimated that the prevalence of MS in Saudi Arabia is 40/100,000 [7]. The whole etiology of multiple sclerosis is not fully understood, but a single causative event is unlikely. Existing evidence indicate that MS is normally a result of autoimmune process in genetically susceptible persons following exposure to specific environmental factors. Which make it involves genetic, autoimmune and environmental factors contributing to the development of the disease [8].

MS diagnosis does not depend on a single test [9]. Instead, the diagnosis is made based on the following evidence; (1) At least two different lesions (plaques or scars) in the white matter of the CNS (the space dissemination criterion). (2) At least two different episodes in the disease course (the time dissemination criterion). (3) Chronic inflammation of the CNS, as determined by analysis of the CSF (the inflammatory criterion). The presence of one or more of these criteria indicates the diagnosis of MS. An international panel on the diagnosis of MS suggested that the time dissemination criterion should be confirmed by clinical signs on MRI at least three months after the previous clinical episode or on a previous MRI. The panel also suggested that the inflammatory criterion can replace the space dissemination criterion when the latter is missing at

the clinical and paraclinical levels [10]. To make a diagnosis of MS, the physician must:

- Find evidence of damage in at least two separate areas of the CNS, which includes the brain, spinal cord, and optic nerves.
- Determine that the damaged areas developed at least one month apart.
- Exclude all other possible diagnoses.
- Observe that the symptoms last for more than 24 hours and occur as distinct episodes separated by one month or more.
- Perform an MRI (the most sensitive imaging test for MS)
- Perform a spinal tap and examination for oligoclonal bands.

At autopsy reports, multiple, discrete gray or pink areas that have a hard, rubbery texture are identified within the white matter of the brain. These lesions are composed of areas of demyelination of myelin and oligodendrocyte as well as infiltrates of inflammatory cells, such as lymphocytes and macrophages [9]. Preservation of axons and neurons within these lesions can help to differentiate MS from other destructive conditions that are characterized by focal inflammation [9]. Initial clinical findings in MS patients are often composed of sensory disturbances, the most common are paresthesias, dysesthesias, ataxia, diplopia, vertigo, and bladder sphincter disturbances. MS has a special phenomenon, which is unilateral numbness affecting one leg that spreads to involve the other leg and rises to the pelvis, abdomen, or other body parts. Sensory disturbances usually resolve but also can progress into chronic neuropathic pain. Trigeminal neuralgia also can be a presentation. Another common and characteristic presenting sign of MS is optic neuritis, associated with partial or complete loss of vision [9]. Bladder dysfunction occurs in more than 90% of MS patients and results in weekly or more frequent episodes of incontinence in one-third of patients. At least 30% of patients experience constipation. Fatigue occurs in 90% of patients and is considered the commonest work-related disability associated with MS [9]. Sexual problems are also reported to be associated with MS [11].

EPIDEMIOLOGY:

There are few studies regarding prevalence and incidence of MS in the middle east [12]. In 1988, Yaqub et al. [13] has published a paper regarding MS in Saudi Arabia, stating that there are indications of increasing the number of cases and the incidence of MS in Saudi Arabia. The authors noted that the presenting symptoms of MS and the site of lesions are similar to that seen in the West countries, while

the course of the disease and its evolution might be different. Ten years after that, Daif et al. [14] published another paper about the pattern of presentation of multiple sclerosis (MS) in Saudi Arabia, indicating also that it resembles the western type of MS.

In a more recent paper published in 2011, Inshasi and Thakre [15] wrote about the prevalence of MS in Dubai (UAE). They found that the prevalence of MS is 54.77/100,000 in 2007 which is absolutely considered high. While there were no previous studies to compare to it, they concluded that Dubai residents should be sought as one of the regions with medium to high risk of developing MS, with a prevalence higher than what investigators have previously estimated. Several hypotheses attempt to explain the increasing rates of MS prevalence but none of them is proven. Vitamin D deficiency is prevalent in the Gulf region despite the area's sunny climate, it has been suggested as one of the contributing factors. Studies in Saudi Arabia revealed that 28 to 80 % of adults had vitamin D deficiency [16]. Consanguinity is also been suggested as an etiology for developing MS. In the Arabian Gulf, marrying a relative is not uncommon. In 2011 Al Jumah et al. [17-18] published a paper correlating the prevalence of familial multiple sclerosis (FMS) and rate of parental consanguinity (PC). He concluded that PC is a risk factor for developing FMS, the author also suggested a potential role of consanguinity.

Alshantiti et al. [19] published a paper regarding MS prevalence in Saudi Arabia 2016. The study has indicated a prevalence of 8.4% among Saudis, which is considered a higher rate than the previous studies. The author has linked the condition with autoimmune diseases and the presence of a genetic diseases. In the same study, most of the patients 25% did not know if they are suffering from MS or not.

RISK FACTORS:

Alwutayd et al. [20]. has published a study in 2018 about the risk factors of multiple sclerosis. The study included 307 patients suffering from multiple sclerosis. The first reported significant risk factor was being the first-born child in the family compared to second child and other siblings. Having a family history was also a risk factor, which can be due to genetic factors. As the role of vitamin D was previously suggested, having high sun exposure was associated with lower risk of multiple sclerosis. Nutrition has also been suggested as a contributing factor. Diet that put the patient at a greater risk for MS include; less fruits and vegetables, more fast food, and less coffee. MS patients have reported associated condition, mostly autoimmune diseases,

including thyroid diseases. Other suggested non-significant associations include; breastfeeding, onset of menstruation, date consumption and red meat.

AWARENESS:

Amer et al. [21] published a study concerning MS awareness in Saudi Arabia in 2016. The authors have indicated a low level of awareness and knowledge regarding MS. Where 65% did not know the disease. Most participants prefer to talk to family if they have the disease and not the physician. Furthermore, they would prefer traditional medicine than going to a health facility. Level of knowledge was significantly associated with age, gender, employment, educational level, and having an affected family member.

CONCLUSION:

Multiple sclerosis is a common condition. While the etiology is not well known, multiple factors are thought to precipitate the disease like genetics and vitamin D deficiency. The level of awareness is low among the general population and the affected individuals themselves. MS requires more attention, extensive research and mass media awareness campaign.

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