

Review article

Multiple sclerosis in India: Iceberg or volcano



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ABSTRACT

Multiple sclerosis (MS)¹ is a chronic neurodegenerative disease involving destruction of the myelin sheath around axons of the brain, spinal cord and optic nerve. There has been a tremendous transformation in its perspective across globe. In recent years, its prevalence has changed dramatically worldwide and India is no exception. Initially, MS was believed to be more common in the Caucasians of Northern Europe and United States; however, it has been found to be present in Indian subcontinent as well. There has been a considerable shift in MS prevalence in India and this has really changed the notion of considering India as a low risk zone for MS. In this review, a concise overview and latest update on changing scenario of MS in India is presented along with some major challenges regarding it persisting across globe even today. In India, remarkable upsurge is needed in carrying out large scale population-based epidemiological studies to get an idea about the true incidence and prevalence rates of MS viz a viz disease burden. Through this review, we have probably tried to identify the actual picture of MS prevalence in India and this could serve as harbinger for upcoming research and at the same time it would definitely aid in working out future strategies for MS management in the country.

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1. Introduction

Multiple sclerosis (MS) is a progressive debilitating and heterogeneous nervous system disease characterized by demyelination due to a misguided atypical immune response within the body. It is the most common neurological disorder affecting mainly central nervous system (CNS) of the body (Berer and Krishnamoorthy, 2014). Several endogenous factors like genetic elements and exogenous components like

environmental elements are believed to be responsible for causing the disease (Fig. 1) (Sadovnick et al., 1996; Simon et al., 2011; Sawcer et al., 2014). As a result, it is supposed to be an outcome of complex interactions between these components (Ramagopalan et al., 2010). Earlier it was believed to be widespread in several parts of Europe and United States only (Compston and Coles, 2008); but, as time has elapsed, it has become a global problem (Atlas of MS, 2013). It is the disease whose prevalence has significantly changed over the time (Pugliatti et al., 2006; Benito-León and Bermejo-Pareja, 2010). There have been several amendments in the diagnostic criteria for its improved diagnosis and effective management (Polman et al., 2011). Extensive research has resulted in better understanding of MS pattern in different parts of the world, with few exceptions (Zahoor et al., 2017b).

As of now, there are sufficient lines of evidence to suggest that MS exists worldwide; however, it shows considerable variation across

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¹ Abbreviations: CNS, central nervous system; CS, clinically definite; MS, multiple sclerosis; MSIF, Multiple Sclerosis International Federation; WHO, World Health Organization.

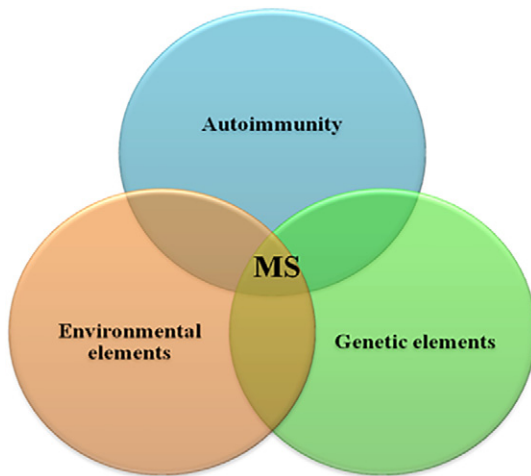


Fig. 1. Venn diagram depicting MS as a complicated disease resulting due to an autoimmune response within an individual in relation to several genetic and environmental factors.

globe (Rosati, 2001; Wasay et al., 2006; Milo and Kahana, 2010). According to the latest reports, MS prevalence has increased worldwide (Rosati, 2001; Atlas of MS, 2013) and the latest survey carried out by the Multiple Sclerosis International Federation (MSIF) and World Health Organisation (WHO) in the year 2013 has pointed towards a global increase in the number of people with MS from 2.1 million in 2008 to 2.3 million in 2013 along with increase in global median prevalence from 30 per 100,000 in 2008 to 33 per 100,000 in 2013 (Atlas of MS, 2008; Atlas of MS, 2013). This has changed MS scenario in the regions which were once considered as low/no risk zones for MS especially Asian countries like India (Zahoor et al., 2017a; Zahoor et al., 2017b). A comparison of MS prevalence between some Asian countries during 2013 has been made with help of data available from Atlas of MS, 2013, reflecting highest prevalence rate for Cyprus (Fig. 2). In this regard, this review article emphasizes the changing prevalence of MS in India and provides insights garnered from the published studies with main focus on understanding the real picture of the disease in India,

with an attempt of providing basis for future epidemiological studies across the country.

2. MS prevalence in India: An update

India is a vast developing South Asian country with enormous diversity in terms of physical features, culture, religion, caste, language, and race. The existence of racial diversity in the Indian sub-continent is due to the presence of a large number of races from diverse backgrounds who have migrated over the Himalayas. This has given rise to the dispersion of these races across India and therefore diversification of the population. This feature makes India a prospective target for exploring epidemiology of heterogeneous diseases like MS. MS was first described in India during 1954–1961 by Singh (Singh et al., 1954), Ramamurthy (Ramamurthy, 1957), and Bharucha (Bharucha and Umarji, 1961). The first attempt to estimate the prevalence rate of MS across India was made by Singhal during 1975–1985 in the west coast area and on the basis of hospital data, it was approximated to be 0.17 to 1.33 per 100,000 (Singhal, 1985). Initially during the period of mid-seventies, MS was believed to be rare in India (Kurtzke, 1985); however, with increased availability of neurologists, revisions in existing diagnostic criteria, increased disease awareness and advancement in diagnostic tools; it is being increasingly diagnosed in India (Syal et al., 1999; Sarma and Nagaraj, 2005; Pandit and Shetty, 2007; Gupta et al., 2013). Most of the studies on MS in India have been conducted in South Indian regions especially Maharashtra (Bombay now Mumbai and Poona now Pune) and Karnataka (Mangalore) in a community-based set up (Singhal, 1985; Bharucha et al., 1988; Wadia and Bhatia, 1990; Pandit and Kundapur, 2014; Jena et al., 2015). There have been very limited studies in North India (Bhatia et al., 1996; Singhal et al., 2015; Zahoor et al., 2017a; Zahoor et al., 2017b). During the period of late eighties and early nineties, two small scale door-to-door surveys and community-based studies were conducted by Bharucha et al. and Wadia and Bhatia in Maharashtra to study the prevalence of MS among Parsi population inhabiting the regions of Mumbai and Pune (Bharucha et al., 1988; Wadia and Bhatia, 1990). They reported prevalence of 21 to 26 per 100,000 (Bharucha et al., 1988; Wadia and Bhatia, 1990) for Parsis from Mumbai and 58 per 100,000 (Wadia and Bhatia, 1990) for those from Pune. The Parsi population also known as Zoroastrians is believed to have migrated to India from the Pars province of Iran and settled along

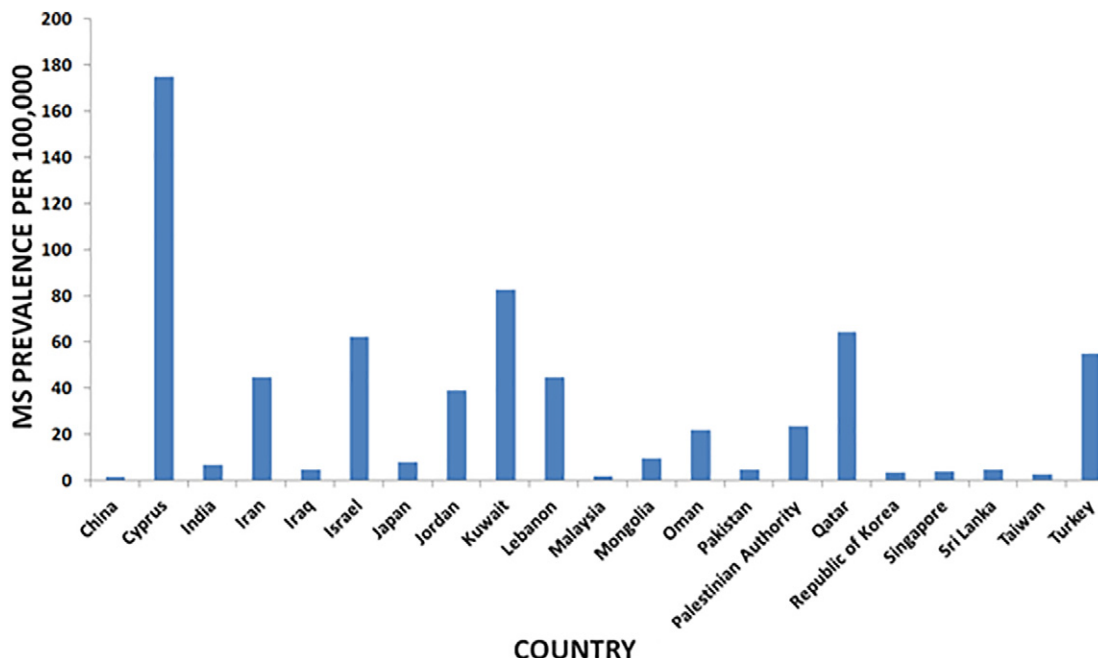


Fig. 2. Bar chart showing comparison of MS prevalence between India and other Asian countries during 2013 (Source: Atlas of MS, 2013).

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