

P211

Multiple Sclerosis Female to Male Ratio Trend from 1999 to 2017 in Tehran, Iran

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Background: Multiple sclerosis (MS) affects more than 2.5 million people worldwide. Several studies in asia revealed an almost regional and national increase in prevalence and incidence of MS over time; and suggest a general increase in incidence of MS in females. Our goal is to evaluate overall trend and patterns of MS and sex-specific changes of incidence and prevalence.

Methods: This is a cross-sectional population-based study founded by iranian MS society data from 1999 to 2017. A questionnaire designed to evaluate most important epidemiological data including female to male ratio in different subgroups of MS patients containing pediatric MS, familial history of MS in different degrees of relatives, late-onset MS , in general population via joint-point regression analysis. Chi-square test analysis was used for indicating significance of gender frequency difference among subgroups with stata v.14.

Results: Among 16980 MS patients, 75.19% were females. The female to male ratios were 3.03:1, 3.82:1 in patients with pediatric MS, 2:28:1 in late onset MS, 2.78:1, 3:06:1 in positive familial history of MS and negative familial history of MS, respectively. In general, female to male ratio showed an insignificant decreasing trend. The decreasing pattern was observed in all of the mentioned subgroups except late-onset MS patients and was only significant in patient with positive familial history of MS. Gender frequencies were significantly different among pediatric and non-pediatric patients, late-onset and non-late-onset patients, and nearly significant among patients with and without familial history of MS.

Conclusions: The MS is over 3 times more common in females. Generally, increasing MS incidence among women in many countries can lead to higher female to male sex ratios of MS in region and this similar tendency was observed in Canada . Unlike the general pattern of the increasing female to male ratio worldwide, we observed decreasing pattern which could be due to a more rapid increase in the incidence of MS in male patients, caused by earlier diagnosis or an actual increase based on relevant genetic and environmental factors.