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Risk Factors and Prevalence of Familial Multiple Sclerosis: A Population- Registry Based Study

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Backgorund: Familial multiple sclerosis (FMS) study is important to recognize the correlated effects of environment and genes in the etiology of disease. The present study examined important variables related to risk of FMS and its prevalence and incidence.

Method(s): The cross-sectional study was conducted in Tehran, Iran from 1999 to 2018 on 21,580 MS patients registered in the Iranian MS Society (IMSS). The subjects were measured as FMS if they had at least one relative diagnosed with MS in their family. To examine factors associating with FMS recurrence, patients with familial history of disease were more divided to pediatric onset MS (POMS) and adult onset of MS (AOMS). P-values < 0.05 were considered significant.

Result(s): Familial MS observed among 13.04% of patients. The age standardized prevalence of FMS increased from 9.3 to 18.3 per 100,000 during the study period. The FMS recurrence was significantly higher in female than male (P = 0.001). Mean age of MS onset was 28.49 years old and FMS had significantly lower age than sporadic MS (P=0.036). The occurrence of POMS was higher in patients with FMS compared to those without family history (8.1% vs. 6.6%). The majority of FMS cases were in first degree of relatives, with the highest rate among siblings (35.38%) . Significantly higher frequency of FMS was among pediatrics than adults (15.8% vs. 13.2%, P=0.007). The strongest association among POMS was found for mother (p=0.002) and paternal grandmother/grandfather (p=0.009). The higher probability of MS occurrences between mother and offspring (7.99%) than between father and offspring (2.34%) was observed.

Conclusion: The increasing prevalence of FMS particularly among POMS in Tehran and displayed a parent-child pairs highlighted more examination on the significant role of genetic and environmental mechanisms in FMS pathogenesis.