

Neuromuscular junction (NMJ) disorders include several dysfunctions that ultimately lead to muscle weakness. Another study detected an increased prevalence of MG among rural male adults in Israel, associating it with pesticide exposure [65]. It cannot be ruled out that other factors may explain this association, but physicians might consider pesticide exposure when patients present with MG symptoms [65]. Being an autoimmune disease, MG correlates with the presence of detectable antibodies directed against the acetylcholine receptor, muscle-specific kinase, lipoprotein-related protein 4, agrin, titin, and ryanodine in the postsynaptic membrane at the NMJ. Few cases of familial autoimmune MG have been reported: a family with parental consanguinity and five of 10 siblings affected by late-onset autoimmune MG [58], a Hungarian family where nine members from two generations developed MG [6], an Italian-American family with 5 children affected by early-onset MG linked to a variant in the ecto-NADH oxidase 1 gene (ENOX1) [6]. Many environmental factors are associated with MG, supporting the hypothesis that genetically sensitive individuals develop the autoimmune disease after exposure to environmental triggers. Myasthenia gravis (MG) is the most prevalent NMJ disorder with a highly polymorphic clinical presentation and many different faces. Risk factors: genetic architecture, geo-epidemiology and the environment MG is very rarely inherited, between 3.8% and 7.1% of MG patients reporting a family history of the disease [57]. The global incidence rate of acetylcholine receptor antibody-positive MG ranges between 4 and 18 per million person-years [8].

Conclusions

Epidemiological data regarding MG are important for postulating hypotheses regarding its etiology and facilitating the description of MG subtypes. The incidence of MuSK MG is estimated at 0.1 per million person-years in Holland and 0.32 per million person-years in Greece [1].

Incidence and prevalence

Based on 35 studies up to 2007 [1], the incidence rate of MG varied from 1.7 to 21.3, with a global rate of 5.3 per million person-years. Incidence and prevalence Based on 35 studies up to 2007 [1], the incidence rate of MG varied from 1.7 to 21.3, with a global rate of 5.3 per million person-years. There is also a higher incidence of ocular MG among Black men and women [44], while Caucasian women show higher rates of generalized MG [43]. A high proportion of patients from Asia presents higher rates of MuSK MG compared with Caucasian MG patients [47]. A multitude of toxins from animal, vegetal, and bacterial sources are able to disturb the function of the NMJ. The pooled incidence rate after 1976 is approximately twice greater than the one before 1976, which is 6.5 vs. 3.5, respectively [7]. The incidence of MG patients with an onset age of 50 years or more increased by 1.5-fold, while the number of patients with an onset age of 65 years or more showed a 2.3-fold rise [23]. Autoimmune thyroiditis occurs in 10% of MG patients [59].

In Table 1, we updated this review to 2019, adding 29 studies with a range of 0.15 to 61.33 per million person-years. The earliest age of onset reported is 1 year [48], while the oldest onset age reported was 98 years old [3]. Age and gender MG affects all ages, but it is considered 'a disease of young women and old men'. For example, the age of onset is higher in Caucasians than non-Caucasians [43]. MG is still a disease of young women and older men.