





Multiple Sclerosis (MS) in children and adults

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1. Case: Emma, 15 years

History:

Numbness of the right side of the tongue and face Dizziness Fatigue

Clinical examination: Unsteady gait

<u>6 weeks later</u>: Visual impairment left eye











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2. Multiple Sclerosis

a) Pathogenetic mechanisms and disease course





Multiple Sclerosis, Reich DS et al, NEJM 2018 Multiple Sclerosis, a treatable disease. Doshi A, Chataway J. Clinical Medicine 2016







2. Multiple Sclerosis

b) Clinical features



Common chronic symptoms Weakness Foot drop Foot drop Bowel and bladder problems Weakness Fatigue Spasticity

MStrust.org.uk





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2. Multiple Sclerosis

c) Epidemiology



Number of people with MS | Atlas of MS



Switzerland

- Prevalence 180 / 100.000
- 15.200 people with MS
- 74% of people with MS are women
- 37 years is the average age at diagnosis
- About 5% pediatric onset
- Swiss Pediatric Inflammatory Brain Disease Cohort Study: 108 children and adolescents with pediatric onset MS since 2015





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3. Treatment and Prevention

Acute (relapse with acute function loss) Corticosteroids (pulsatile)

Chronic (Disease Modifying Therapies (DMTs)) Goal: Delay / prevent disease progression



Risk factors (MS aetiology multifactorial)

Modifiable: obesity in childhood, infections (EBV!), cigarette smoking, low vitamin D levels Non modifiable: geographical latitude, genetic predisposition, female gender

Multiple Sclerosis. Thompson AJ et al. Lancet 2018

Epstein-Barr virus as a cause of multiple sclerosis: opportunities for prevention and therapy. Aloisi F et al. Lancet Neurol 2023





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4. Prognosis and Impact on Society

Effect of treatment

Transition time between milestone EDSS scores for placebo versus any-DMT-treated patients

EDSS score	Placebo-treated (years)	DMT-treated (years)	Time gained due to treatment (years): Delta 95% CI	
1 to 4	8.95	12.46	3.51 (3.19, 3.96)	
1 to 6	18.48	21.57	3.09 (2.60, 3.72)	
4 to 6	9.91	11.31	1.40 (0.86, 1.92)	

How patients with multiple sclerosis acquire disability. Lublin FD et al. Brain 2022



Mean overall costs of basic health insurance for medication and difference between persons with and without MS in Swiss Francs (2011-2015)

Year	Non-MS	95% CI	MS	95% CI	
2011	920	910-930	23,000	22,300-23,700	
2012	950	940-960	24,200	23,700-24,700	
2013	940	930-950	21,900	21,500-22,400	
2014	950	940-960	21,100	20,700-21,500	
2015	980	980-990	21,100	20,700-21,500	

Abbreviation: MS, multiple sclerosis.

Epidemiology and costs of multiple sclerosis in Switzerland: an analysis of health-care claims data, 2011-2015. Blozik E et al. Neuropsychiatric Disease and Treatment 2017





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5. Conclusion

Current MS treatments are effective but we still have to do better.

Active patient organization provides support. www.multiplesklerose.ch

Better understanding of pathogenetic mechanisms is crucial for prevention and future treatment strategies.