Cochrane
Multiple Sclerosis and Rare Diseases of the Central Nervous System
Visual abstract created by Agnes Zanotto

Gonzalez-Lorenzo M, Ridley B, Minozzi S, Del Giovane C, Peryer G, Piggott T, Foschi M, Filippini G, Tramacere I, Baldin E, Nonino F. Immunomodulators and immunosuppressants for relapsing-remitting multiple sclerosis: a network meta-analysis. *Cochrane Database of Systematic Reviews* 2024, Issue 1. Art. No.: CD011381. DOI: 10.1002/14651858.CD011381.pub3.

What are the benefits and risks of drugs acting on the immune system to treat relapsing-remitting multiple sclerosis?

- After 2 years of treatment, natalizumab, cladribine, and alemtuzumab perform better in reducing RRMS relapses.
- Longer studies (more than 24 months) are needed to assess immune-modulating drugs' benefits and harms for RRMS.
- Outcomes important to people with MS, like quality of life and cognitive function, should be the focus of future research comparing these drugs.

PICO

P Adults diagnosed with RRMS

I Monotherapy with immunomodulators and immunosuppressants

C Placebo and active drugs

O Relapse and Disease progression

EVIDENCE

The review included **50 studies** with **36,541 participants** (68.6% female, 31.4% male). The median treatment duration was **24 months**, and 50% of the studies were placebo-controlled. The studies were randomized controlled trials (RCTs). The evidence is up-to-date until **August 8, 2022**.

RESULTS

CERTAINTY OF EVIDENCE

	Decrease relapse over 12 months	
18 studies	• **Daclizumab, Fingolimod, Immunoglobulins**	**Moderate**
	• **Natalizumab**	**High**
	Decrease relapse over 24 months	
28 studies	• **Dimethylfumarate, Fingolimod, Glatiramer acetate, Interferon beta-1a , Ponesimod**	**Moderate**
	• **Alemtuzumab, Cladribine, Natalizumab**	**High**
	Reduce disability worsening over 24 months	
31 studies	• **Natalizumab**	**Moderate**
	Decrease treatment discontinuation due to adverse events	
	• **Alemtuzumab**	**Moderate**
	Increase treatment discontinuation due to adverse events	
43 studies	• **Daclizumab, Fingolimod, Teriflunomide, Interferon beta-1a, Laquinimod, Natalizumab, Glatimer acetate**	**Moderate**
	Reduction in serious adverse events	
35 studies	• **Interferon beta-1b**	**Moderate**