SYMPTOMATIC TREATMENT TRIALS

updated August 2012

Abbreviations Key:

AAN – American Academy of Neurology
ECTRIMS – European Committee of Treatment and Research in MS
IM – intramuscular, injected into muscle
IV – intravenous, injected into vein
PP - primary progressive
PR - progressive relapsing
RR - relapsing-remitting
SC – subcutaneous, injected under the skin
SP - secondary progressive

AGENT	PUR-POSE OF STUDY	POSSIBLE MECHANISM	HOW DRUG IS TAKEN	TYPE OF MS/ NUMBER OF SUB-JECTS	RESULTS
Aspirin	To improve fatigue	Inhibits prostaglandins	Oral	RR, SP/ 135	Ongoing, read more http://clinicaltrials.gov/ct2/show/NCT00467584.
Botulinum toxin A (Botox®, Allergan, Inc.)	To improve bladder dys-function, also known as Dignity Study	Blocks neuromuscular transmission	Injected into bladder	All types/ 275	Reduced incontinence (*European Urology* 2011 Oct;60(4):742-50, http://www.ncbi.nlm.nih.gov/pubmed/21798658; read more http://www.nationalmssociety.org/news/news-detail/index.aspx?nid=5454)

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Botulinum toxin A (Botox®, Allergan, Inc.)	To improve bladder and res-piratory dys-function, (Dignity TOO Study)	Blocks neuromuscular transmission	Injected into bladder	All types/ 135	Ongoing, read more http://clinicaltrials.gov/ct2/show/NCT00439140.
Botulinum toxin A (Botox®, Allergan, Inc.)	To improve tremor	Blocks neuromuscular transmission	IM	All types/ 23	Reduced arm tremor significantly more than placebo (*Neurology* 2012;79:92-99; read more http://www.nationalmssociety.org/news/news-detail/index.aspx?nid=6581).
Cannabis extract (cannador)	To improve pain and muscle stiffness, also known as MUSEC trial	May inhibit neurotransmitter release, affect immune function, be neuroprotective	Oral	All types/ 279	Reduce muscle stiffness (*Journal of Neurology, Neurosurgery & Psychiatry* published online July 12, 2012, http://jnnp.bmj.com/content/early/2012/07/11/jnnp-2012-302468.abstract).

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Cannabis extract (tetrahydrocannabinol and cannabidiol, Sativex®, GW Pharmaceuticals)	To improve spasticity	Interacts with cannabinoid receptors on CNS cells, possibly relating to motor function, cognition and affect	Oral	All types/ 572	Significant difference in favor of Sativex (*European Journal of Neurology* 2011;18(9):1122-31; read more http://www.ncbi.nlm.nih.gov/pubmed/21362108*).*
Dextromethorphan/quinidine (Zenvia™, Avanir Pharmaceuticals)	To improve central neuro-pathic pain	Antagonist of NMDA receptor, suppresses excitatory neuro-transmitter	Oral	RR, SP/ 400	Ongoing, read more http://clinicaltrials.gov/ct2/show/NCT01324232.
Duloxetine hydrochloride (Cymbalta®, Lilly)	To decrease central neuro-pathic pain due to MS	Inhibits serotonin and norepinephrine reuptake in CNS, leading to modulation of central sensitization and neuroplasticity	Oral	All types/ 238	Significantly improved pain (ECTRIMS 2011, Abstract #P1044).
Estriol	To improve cognitive function	Pregnancy hormone that decreases Th1 inflammatory immune response	Oral	RR, SP (women)/ 64	Ongoing, read more http://clinicaltrials.gov/ct2/show/study/NCT01466114.

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Ginkgo biloba	To improve cognitive function	Alter neural function	Oral	All types/ 121	No differences between Ginkgo and placebo (AAN 2011, Abstract #S41.004).
Ginseng	To improve mental alertness and fatigue	Possible glucoregulatory and/or immune-regulatory properties	Oral	All types/ 108	No significant improvement in primary or secondary endpoints (*Multiple Sclerosis Journal*, 2011;17(12):1523-1526, http://msj.sagepub.com/content/17/12/1523)
Pregabalin (Lyrica®, Pfizer, Inc.) vs. paroxetine (Paxil®, GlaxoSmith Kline)	To improve MS-related pain	GABA analogue, thought to act as Ca++ channel modulator/ selective serotonin reuptake inhibitor	Oral	All types/ 75	Ongoing, read more http://clinicaltrials.gov/ct2/show/NCT00291148.
Rehabilitation (memory retraining)	To improve new learning/ memory	Engages more cortical regions into long-term memory	Memory re-training	All types/ 200	Ongoing, not recruiting; read more http://clinicaltrials.gov/ct2/show/NCT00166283.

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Rehabilitation (self management)	To decrease pain, fatigue, and depression also known as Take Charge study	Programs and strategies that enable people to monitor and manage disease have been shown to help people with other chronic conditions reduce similar symptoms	Self manage-ment	All types/ 200	Ongoing, read more http://clinicaltrials.gov/ct2/show/NCT00944190.
XP19986 (arbaclofen placarbil, Xenoport Inc.)	To improve spasticity	Pro-drug of baclofen, active isomer of baclofen; expected to reduce dosing frequency and fluctuations in plasma exposure	Oral	All types/ 200	Ongoing, read more http://clinicaltrials.gov/ct2/show/NCT01359566.