

SUPPLEMENTARY APPENDIX

Table S1: The MuSC-19 Study group

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| Agostino Nozzolillo | Multiple Sclerosis Center Neurology Department IRCCS San Raffaele Hospital Milan |
| Alessandra Bellacosa | Centro Sclerosi Multipla, UO Neurologia, Ospedale San Giacomo, Monopoli (Bari) |
| Alessandra Protti | Centro Sclerosi Multipla ASST Grande Ospedale Metropolitano Niguarda (Milano) |
| Alessia Di Sapio | Department of Neurology, Regina Montis Regalis Hospital (Mondovì, CN) |
| Alessio Signori | Section of Biostatistics, Department of Health Sciences, University of Genova, Genova, Italy |
| Alfredo Petrone | Ospedale Annunziata (Cosenza) |
| Alvino Biseco | MS Center I Division of Neurology, Department of Advanced Medical and Surgical Sciences, University of Campania (Napoli) |
| Aniello Iovino | Department of neuroscience, reproductive science and odontostomatology (Napoli) |
| Anna Dutto | Ambulatorio "Sclerosi Multipla" ospedale "SS.Annunziata" (Savigliano, CN) |
| Anna Maria Repice | Centro Sclerosi Multipla Neurologia II AOU Careggi (Firenze) |
| Antonella Conte | Multiple Sclerosis Center, Policlinico Umberto I. Department of Human Neuroscience, Sapienza, University of Rome (Roma) IRCCS Neuromed, Pozzilli (IS) |
| Antonio Bertolotto | Regional Referral Multiple Sclerosis Centre, Dept. Of Neurology, University Hospital San Luigi (Orbassano, TO) |
| Antonio Bosco | Clinica Neurologica, ASUGI (Trieste) |
| Antonio Gallo | MS Center I Division of Neurology, Department of Advanced Medical and Surgical Sciences, University of Campania (Napoli) |
| Antonio Zito | Multiple Sclerosis Center, IRCCS Mondino Foundation (Pavia) |
| Arianna Sartori | Clinica Neurologica, ASUGI (Trieste) |
| Bruno Giometto | Ospedale Santa Chiara, Trento. UO Neurologia (Trento) |
| Carla Tortorella | Dept. of Neurosciences, San Camillo Forlanini Hospital, Rome |
| Carlo Antozzi | Centro Sclerosi Multipla, Fondazione IRCCS Istituto Neurologico "Carlo Besta", Milano |
| Carlo Pozzilli | MS Center S.Andrea Hospital University of Rome "La Sapienza" |
| Chiara Rosa Mancinelli | Centro Sclerosi Multipla ASST Spedali Civili di Brescia |
| Chiara Zanetta | Multiple Sclerosis Center Neurology Department IRCCS San Raffaele Hospital Milan |
| Christian Cordano | UCSF Weill Institute for Neurosciences, San Francisco, CA, USA |
| Cinzia Cordioli | Centro Sclerosi Multipla ASST Spedali Civili di Brescia, Montichiari, Italy |
| Cinzia Scandellari | IRCCS Istituto Scienze Neurologiche di Bologna, UOSI Riabilitazione Sclerosi Multipla, Bologna |

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| Clara Guaschino | Centro Sclerosi Multipla, ASST della Valle Olona, Ospedale di Gallarate |
| Claudio Gasperini | Dept. of Neurosciences, San Camillo Forlanini Hospital, Rome |
| Claudio Solaro | CRRF "Mons.L.Novarese" (Moncrivello, VC) |
| Cristina Fioretti | Centro Sclerosi Multipla (Livorno) |
| Daiana Bezzini | AISM Rehabilitation Center, Italian MS Society, Padova |
| Damiano Marastoni | The Multiple Sclerosis Center of University Hospital of Verona, Dept.of Neuroscience, Biomedicine e Movement |
| Damiano Paolicelli | Department of Basic Medical Sciences, Neurosciences and Sense Organs, University of Bari Aldo Moro (Bari) |
| Domizia Vecchio | Neurology Unit, Department of Translational Medicine, University of Piemonte Orientale (Novara) |
| Doriana Landi | Multiple Sclerosis Center and research unit, Fondazione Policlinico di Tor Vergata, Rome, Italy. Department of Systems Medicine, Tor Vergata University, Rome, Italy |
| Elisabetta Bucciantini | Ambulatorio "Sclerosi Multipla" ospedale "SS.Annunziata" (Savigliano, CN) |
| Elisabetta Pedrazzoli | AISM Rehabilitation Center, Italian MS Society, Padova |
| Elisabetta Signoriello | Centro per la Sclerosi Multipla II Clinica Neurologica Università della Campania (Napoli) |
| Elvira Sbragia | Department of Neuroscience, Rehabilitation, Ophthalmology, Genetics, Maternal and Child Health (DINO GMI), University of Genova, Genova, Italy. |
| Emanuela Laura Susani | Centro Sclerosi Multipla ASST Grande Ospedale Metropolitano Niguarda (Milano) |
| Erica Curti | Unit of Neurosciences Department of Medicine and Surgery University of Parma, Parma, Italy |
| Eva Milano | Ospedale Maria Vittoria (Torino) |
| Fabiana Marinelli | MS Center Fabrizio Spaziani Hospital, Frosinone, Italy |
| Federico Camilli | IRCCS Istituto Scienze Neurologiche di Bologna, UOSI Riabilitazione Sclerosi Multipla, Bologna |
| Filippo Martinelli Boneschi | Neurology Unit and MS Centre, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico. Dino Ferrari Centre, Neuroscience Section, Department of Pathophysiology and Transplantation (DEPT), University of Milan |
| Flora Govone | Department of Neurology, Regina Montis Regalis Hospital (Mondovì, CN) |
| Francesca Bovis | Section of Biostatistics, Department of Health Sciences, University of Genova, Genova, Italy |
| Francesca Calabria | Neurologia A, Azienda Ospedaliera Universitaria Integrata Verona |
| Francesca Caleri | Multiple Sclerosis Center, Neurology Department F. Tappeiner Hospital Merano (BZ) |
| Francesca Rinaldi | Multiple Sclerosis Centre of Veneto Region, University Hospital of Padova |
| Francesca Vitetta | Department of Neurosciences, University of Modena and Reggio Emilia |
| Francesco Corea | Neurologia Ospedale S. Giovanni Battista, Foligno |
| Francesco Crescenzo | The Multiple Sclerosis Center of University Hospital of Verona, Dept.of Neuroscience, Biomedicine e Movement |
| Francesco Patti | Department of Medical and Surgical Sciences and Advanced Technologies, GF Ingrassia, University of Catania Centro Sclerosi Multipla, Policlinico Catania, University of Catania |

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| Francesco Teatini, Giulietta Tabiadon | Ambulatorio Dedicato Sclerosi Multipla Ospedale San Maurizio di Bolzano |
| Franco Granella | Unit of Neurosciences Department of Medicine and Surgery University of Parma, Parma, Italy |
| Giacomo Boffa | Department of Neuroscience, Rehabilitation, Ophthalmology, Genetics, Maternal and Child Health (DINOEMI), University of Genova, Genova, Italy. |
| Giacomo Lus | Centro per la Sclerosi Multipla II Clinica Neurologica Università della Campania (Napoli) |
| Giampaolo Brichetto | AIMS Rehabilitation Center, Italian MS Society, Genoa |
| Giancarlo Comi | Institute of Experimental Neurology, IRCCS Ospedale San Raffaele, Milano |
| Gioacchino Tedeschi | Department of Advanced Medical and Surgical Sciences, University of Campania, Napoli, Italy |
| Giorgia Teresa Maniscalco | Multiple Sclerosis Center "A. Cardarelli", Naples, Italy |
| Giovanna Borriello | MS Center S.Andrea Hospital University of Rome "La Sapienza" |
| Giovanna De Luca | Multiple Sclerosis Centre, Neurology Unit, "SS. Annunziata" University Hospital, Chieti, Italy |
| Giovanna Konrad | AIMS Rehabilitation Center, Italian MS Society, Aosta |
| Giovanna Vaula | AOU Città della Salute e della Scienza di Torino. |
| Girolama Alessandra Marfia | Multiple Sclerosis Center and research unit, Fondazione Policlinico di Tor Vergata, Rome, Italy. Department of Systems Medicine, Tor Vergata University, Rome, Italy |
| Giulia Mallucci | Multiple Sclerosis Center, IRCCS Mondino Foundation (Pavia) |
| Giuseppe Liberatore | Neuromuscular and Neuroimmunology Service, Humanitas Clinical and Research Institute (Rozzano, MI) |
| Giuseppe Salemi | Università di Palermo; Dipartimento di Biomedicina, Neuroscienze e Diagnostica avanzata |
| Giuseppina Miele | UOC II Neurologia, Dipartimento di Scienze Mediche e chirurgiche avanzate, Università della Campania "Luigi Vanvitelli" |
| Grazia Sibilìa | Neurology Department MS Center, ASL Napoli 1 Centro, Naples, Italy |
| Ilaria Pesci | Centro Sclerosi Multipla Fidenza |
| Irene Schiavetti | Department of Health Sciences, University of Genova, Italy |
| Laura Brambilla | Centro Sclerosi Multipla, Fondazione IRCCS Istituto Neurologico "Carlo Besta", Milano |
| Leonardo Lopiano | University of Turin |
| Leonardo Sinisi | Neurology Department MS Center, ASL Napoli 1 Centro, Naples, Italy |
| Livia Pasquali | Department of Clinical and Experimental Medicine, Neurology Unit, University of Pisa, Pisa, Italy |
| Lorenzo Saraceno | Centro Sclerosi Multipla ASST Grande Ospedale Metropolitano Niguarda (Milano) |
| Luca Carmisciano | Department of Health Sciences, University of Genova, Italy |
| Luca Chiveri | ASST Ovest Milanese Ospedale di Legnano (Legnano, MI) |
| Luca Mancinelli | UOC Neurologia Ospedale "M. Bufalini" Cesena |
| Lucia Moiola | Department of Neurology, Multiple Sclerosis Center, IRCCS Ospedale San Raffaele, Milan, Italy |
| Luigi M.E. Grimaldi | Fondazione Istituto G. Giglio, Cefalù (Palermo) |

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| Luisa Maria Caniatti | Centro Sclerosi Multipla, Azienda Ospedale Università Sant'Anna Cona Ferrara |
| Marco Capobianco | Regional Referral Multiple Sclerosis Centre, Dept. of Neurology, University Hospital San Luigi, Orbassano (Torino), Italy |
| Marco Della Cava | AIMS Rehabilitation Center, Italian MS Society, Vicenza |
| Marco Onofrj | Department of Neuroscience, Imaging and Clinical Science, and Aging Research Centre, G. d'Annunzio University of Chieti, Pescara, Chieti, Italy |
| Marco Rovaris | IRCCS Fondazione Don Carlo Gnocchi (Milano) |
| Marco Salvetti | Department of Neuroscience, Mental Health and Sensory Organs, Sapienza University of Rome, Rome, Italy Unit of Neurology, IRCCS Neuromed, Pozzilli, Isernia, Italy |
| Marco Vercellino | A.O.U. Città della Salute e della Scienza di Torino |
| Margherita Monti Bragadin | AIMS Rehabilitation Center, Italian MS Society, Genoa |
| Maria Buccafusca | Centro Sclerosi Multipla. UOC Neurologia e malattie neuromuscolari. Dipartimento Emergenza AOU Policlinico Gaetano Martino, Messina |
| Maria Chiara Buscarinu | Department of Neurosciences, Mental Health and Sensory Organs Sapienza University, S. Andrea Hospital (Roma) |
| Maria Grazia Celani | SC di Neurofisiopatologia, Azienda Ospedaliera di Perugia |
| Maria Grazia Grasso | Santa Lucia Foundation IRCCS, MS Center (Roma) |
| Maria Laura Stromillo | Department of Medicine, Surgery and Neuroscience, University of Siena |
| Maria Petracca | Department of Neurosciences, Reproductive and Odontostomatological Sciences, University of Naples Federico II, Naples, Italy |
| Maria Pia Amato | Department NEUROFARBA, University of Florence IRCCS Fondazione Don Carlo Gnocchi, Florence, Italy |
| Maria Pia Sormani | Department of Health Sciences, University of Genova, Italy IRCCS Ospedale Policlinico San Martino, Genoa, Italy |
| Maria Rita L'Episcopo | Centro Sclerosi Multipla Ospedale San Lazzaro, Alba |
| Maria Sessa | Department of Neurology and Multiple Sclerosis Center, ASST "Papa Giovanni XXIII", Bergamo |
| Maria Teresa Ferrò | Neuroimmunology, Center for Multiple Sclerosis, Neurological Department, ASST Crema |
| Maria Trojano | Department of Basic Medical Sciences, Neurosciences and Sense Organs, University of Bari, Bari, Italy |
| Maria Vittoria Ercolani | SC di Neurofisiopatologia, Azienda Ospedaliera di Perugia |
| Mariangela Bianco | IRCCS Fondazione Don Carlo Gnocchi (Milano) |
| Marianna Lo Re | Regional Referral Multiple Sclerosis Centre, Dept. Of Neurology, University Hospital San Luigi (Orbassano, TO) |
| Marika Vianello | OU Neurology Treviso |
| Marinella Clerico | Dipartimento di Scienze Cliniche e Biologiche, Università di Torino |
| Mario Alberto Battaglia | Research Department, Italian Multiple Sclerosis Foundation, Genoa, Italy Department of Life Sciences, University of Siena, Italy |
| Mario di Napoli | Centro Sclerosi Multipla Rieti (Rieti) |
| Marta Ponzano | Section of Biostatistics, Department of Health Sciences, University of Genova, Genova, Italy |

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| Marta Zaffira Conti | Department of Neurology and Multiple Sclerosis Center, ASST “Papa Giovanni XXIII”, Bergamo |
| Massimiliano Calabrese | The Multiple Sclerosis Center of University Hospital of Verona, Dept.of Neuroscience, Biomedicine e Movement |
| Massimiliano Mirabella | Fondazione Policlinico Universitario Agostino Gemelli IRCCS. Università Cattolica del Sacro Cuore, sede di Roma |
| Massimo Filippi | Multiple Sclerosis Center Neurology Department IRCCS San Raffaele Hospital Milan |
| Matilde Inglese | Department of Neuroscience, Rehabilitation, Ophthalmology, Genetics, Maternal and Child Health (DINOEMI), University of Genova, Genova, Italy Ospedale Policlinico San Martino IRCCS, Genova, Italy |
| Matteo Lucchini | Fondazione Policlinico Universitario Agostino Gemelli IRCCS. Università Cattolica del Sacro Cuore, sede di Roma |
| Matteo Pozzato | University of Milan |
| Maura Chiara Danni | Centro Sclerosi Multipla Ospedali Riuniti Ancona |
| Mauro Zaffaroni | Centro Sclerosi Multipla, ASST della Valle Olona, Ospedale di Gallarate |
| Mauro Zampolini | Neurologia Ospedale S. Giovanni Battista, Foligno |
| Michela Ponzio | AISM Rehabilitation Center, Italian MS Society, Genoa |
| Milena De Riz | MS Center, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico. Dino Ferrari Centre, University of Milan. |
| Nicola De Rossi | Centro Sclerosi Multipla ASST Spedali Civili di Brescia, Montichiari, Italy |
| Nicola De Stefano | Department of Medicine, Surgery and Neuroscience, University of Siena |
| Paola Cavalla | Centro Sclerosi Multipla, A.O.U. Città della Salute e della Scienza di Torino |
| Paola De Mitri | Multiple Sclerosis Center, Ospedale Guglielmo da Saliceto |
| Paola Grossi | Neuroimmunology, Center for Multiple Sclerosis, Neurological Department, ASST Crema |
| Paola Zaratini | Research Department, Italian Multiple Sclerosis Foundation, Genoa, Italy |
| Paolo Confalonieri | Centro Sclerosi Multipla, Fondazione IRCCS Istituto Neurologico "Carlo Besta", Milano |
| Paolo Gallo | Multiple Sclerosis Centre of Veneto Region, University Hospital of Padova |
| Paolo Immovilli | Multiple Sclerosis Center, Ospedale Guglielmo da Saliceto, Piacenza, Italy |
| Paolo Ragonese | Università di Palermo; Dipartimento di Biomedicina, Neuroscienze e Diagnostica avanzata |
| Patrizia Sola | Department of Neurosciences, University of Modena and Reggio Emilia |
| Pietro Annovazzi | Centro Sclerosi Multipla, ASST della Valle Olona, Ospedale di Gallarate |
| Pietro Iaffaldano | Department of Basic Medical Sciences, Neurosciences and Sense Organs, University of Bari Aldo Moro (Bari) |
| Raffaele Nardone | Paracelsus Medical University, Department of Neurology, Salisburgo (AU) |
| Raffaella Cerqua | Centro Sclerosi Multipla Ospedali Riuniti Ancona |
| Raffaella Clerici | Valduce Hospital, Department of Neurology, Como |
| Roberta Lanzillo | Department of Neurosciences, Reproductive and Odontostomatological Sciences, University of Naples Federico II, Naples, Italy |

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| Roberta Motta | AIMS Rehabilitation Center, Italian MS Society, Genoa |
| Roberto Balgera | MS Center, ASST Lecco, Lecco, Italy. |
| Roberto Bergamaschi | Multiple Sclerosis Center, IRCCS Mondino Foundation (Pavia) |
| Rocco Totaro | Demyelinating Disease Center, San Salvatore Hospital, L'Aquila, Italy |
| Rosa Iodice | Department of neuroscience, reproductive science and odontostomatology (Napoli) |
| Ruggero Capra | Centro Sclerosi Multipla ASST Spedali Civili di Brescia |
| Sabrina Marangoni | Ospedale Santa Chiara, Trento. UO Neurologia (Trento) |
| Sabrina Realmuto | UOC di Neurologia e Stroke Unit, AOOR Villa Sofia Cervello (Palermo) |
| Salvatore Cottone | Multiple Sclerosis Center, U.O.C. Dep. of Neurology Stroke Unit A.R.N.A.S Civico Palermo |
| Sara Montepietra | IRCSS AUSL Reggio Emilia UOC di Neurologia |
| Sarah Rasia | Centro Sclerosi Multipla ASST Spedali Civili di Brescia |
| Sebastiano Arena | Department GF Ingrassia, University of Catania, Centro Sclerosi Multipla, Policlinico Catania |
| Sebastiano Bucello | P.O. Muscatello (Augusta, SR) |
| Silvia Banfi | AIMS Rehabilitation Center, Italian MS Society, Como |
| Simona Bonavita | UOC II Neurologia, Dipartimento di Scienze Mediche e chirurgiche avanzate, Università della Campania "Luigi Vanvitelli" |
| Simona Malucchi | Regional Referral Multiple Sclerosis Centre, Dept. Of Neurology, University Hospital San Luigi (Orbassano, TO) |
| Simone Tonietti | Centro Sclerosi Multipla Ospedale San Carlo Borromeo (Milano) |
| Stefano Vollaro | Multiple Sclerosis Center, Ospedale Guglielmo da Saliceto |
| Susanna Cordera | Centro Sclerosi Multipla della SC neurologia e stroke unit dell'AUSL della Valle d' Aosta |
| Umberto Aguglia | Department of Medical and Surgical Sciences, Magna Graecia University of Catanzaro, Italy Great Metropolitan Hospital, Reggio Calabria, Italy |
| Valentina Torri Clerici | Centro Sclerosi Multipla, Fondazione IRCCS Istituto Neurologico "Carlo Besta", Milano |
| Valeria Barcella | Department of Neurology and Multiple Sclerosis Center, ASST "Papa Giovanni XXIII", Bergamo |
| Valeria Bergamaschi | AIMS Rehabilitation Center, Italian MS Society, Vicenza |
| Vincenzo Brescia Morra | Department of Neurosciences, Reproductive and Odontostomatological Sciences, University of Naples Federico II, Naples, Italy |
| Vincenzo Dattola | Department of Medical and Surgical Sciences, Magna Graecia University of Catanzaro, Italy Great Metropolitan Hospital, Reggio Calabria, Italy |
| Vittorio Mantero | MS Center, ASST Lecco, Lecco, Italy. |

Table S2: List of Centers and enrolled patients

| Centers | Patients* |
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| 01 - Centro Sclerosi Multipla ASST Spedali Civili di Brescia (Montichiari, BS) | 113 |
| 02- Multiple Sclerosis Center, IRCCS Mondino Foundation (Pavia) | 15 |
| 03 - Multiple Sclerosis Center, Policlinico Umberto I, Department of Human Neuroscience, Sapienza, University of Rome (Roma) | 1 |
| 04 - Centro Sclerosi Multipla della SC neurologia e stroke unit dell'ausl della Valle d' Aosta (Aosta) | 4 |
| 05 - Department of Neuroscience, Rehabilitation, Ophthalmology, Genetics, Maternal and Child Health (DINOEMI), University of Genova (Genova) | 26 |
| 06 - Centro Sclerosi Multipla U.O.C. Neurologia con Stroke Unit A.R.N.A.S Civico (Palermo) | 2 |
| 07 - San Raffaele Hospital (Milano) | 88 |
| 08 - Multiple Sclerosis Center, University Hospital of Verona (Verona) | 15 |
| 09 - Centro Sclerosi Multipla Fidenza (Fidenza, PR) | 12 |
| 10 - Multiple Sclerosis Center, Ospedale Guglielmo da Saliceto (Piacenza) | 23 |
| 11 - Centro Sclerosi Multipla, ASST della Valle Olona, Ospedale di Gallarate (Gallarate, VA) | 19 |
| 12 - Multiple Sclerosis Centre of Veneto Region (Padova) | 7 |
| 13 - IRCCS Istituto Scienze Neurologiche di Bologna, UOSI Riabilitazione Sclerosi Multipla (Bologna) | 10 |
| 14 - Multiple Sclerosis Center and research unit, Fondazione Policlinico di Tor Vergata, Rome, Italy (Roma) | 4 |
| 15 - Neuroimmunology, Center for Multiple Sclerosis, Neurological Department, ASST Crema (Crema, CR) | 8 |
| 16 - Centro Sclerosi Multipla San Camillo Forlanini (Roma) | 4 |
| 17 - UOC II Neurologia Università della Campania "Luigi Vanvitelli" (Napoli) | 4 |
| 18 - Centro Sclerosi Multipla Ospedali Riuniti Ancona (Ancona) | 3 |
| 19 - Valduce Hospital, Department of Neurology (Como) | 5 |
| 20 - Azienda Ospedaliero-Universitaria di Parma (Parma) | 12 |
| 21 - Department of Neurology and Multiple Sclerosis Center, ASST "Papa Giovanni XXIII" (Bergamo) | 90 |
| 22 - Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico (Milano) | 11 |
| 23 - Università di Palermo; Dipartimento di Biomedicina, Neuroscienze e Diagnostica avanzata (Palermo) | 4 |
| 24 - Regional Referral Multiple Sclerosis Centre, Dept. of Neurology, University Hospital San Luigi (Orbassano, TO) | 18 |
| 26 - Neurologia A, Azienda Ospedaliera Universitaria Integrata Verona (Verona) | 3 |
| 27- Unità Operativa di Neurologia dell'Ospedale San Raffaele Giglio di Cefalù (Palermo) | 1 |
| 28 - S.O. Centro Sclerosi Multipla, U.O. Neurologia IV, Fondazione IRCCS Istituto Neurologico "Carlo Besta" (Milano) | 57 |
| 29 - Department of Neurology, Regina Montis Regalis Hospital (Mondovì, CN) | 4 |
| 30 - Reggio Emilia multiple sclerosis center (Reggio Emilia) | 2 |
| 31 - Multiple Sclerosis Center (Merano, BZ) | 5 |
| 32 - Dipartimento di Scienze Cliniche e Biologiche (Torino) | 2 |
| 33 - Multiple Sclerosis Center, University of Naples Federico II (Napoli) | 18 |
| 34 - Università degli Studi di Messina (Messina) | 6 |
| 35 - Centro Sclerosi Multipla, A.O.U. Città della Salute e della Scienza di Torino (Torino) | 14 |
| 36 - AOU Careggi Riabilitazione Neurologia (Firenze) | 2 |
| 37 - Centro Malattie Demyelinizzanti (Modena) | 3 |
| 38 - Centro SM del G.O.M. (Reggio Calabria) | 4 |

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| 39 - Centro Sclerosi Multipla, azienda ospedale università s. Anna Cona Ferrara (Ferrara) | 1 |
| 40 - Multiple Sclerosis Centre SS Annunziata Hospital University Chieti (Chieti) | 10 |
| 41 - Department of Medicine, Surgery and Neuroscience, University of Siena (Siena) | 3 |
| 42 - Ambulatorio "Sclerosi Multipla" ospedale "SS. Annunziata" Savigliano (CUNEO) (Savigliano, CN) | 3 |
| 43 - Centro Sclerosi Multipla (Foligno, PG) | 4 |
| 44 - UOC di Neurologia e Stroke Unit, AOOR Villa Sofia-Cervello (Palermo) | 1 |
| 45 - MS Center - I Division of Neurology, Department of Advanced Medical and Surgical Sciences, University of Campania (Napoli) | 7 |
| 47 - Centro Sclerosi Multipla Ospedale Spaziani (Frosinone) | 2 |
| 48 - Centro Sclerosi Multipla (Livorno) | 3 |
| 49 - Centro Malattie Demyelinizzanti (L'Aquila) | 2 |
| 50 - Neurology Unit, Department of Translational Medicine, University of Piemonte Orientale (Novara) | 2 |
| 51 - IRCCS Fondazione Don Carlo Gnocchi (Milano) | 8 |
| 52 - UOS Sclerosi Multipla - Fondazione Policlinico Universitario Agostino Gemelli IRCCS (Roma) | 3 |
| 53 - SC Neurologia 2U AOU Città della salute e della Scienza di Torino (Torino) | 4 |
| 54 - Department GF Ingrassia, University of Catania, Centro Sclerosi Multipla, Policlinico Catania (Catania) | 6 |
| 55 - Santa Lucia Foundation IRCCS, MS Center (Roma) | 1 |
| 56 - Ospedale Santa Chiara, Trento. UO Neurologia (Trento) | 3 |
| 57 - ASST Ovest Milanese Ospedale di Legnano (Legnano, MI) | 1 |
| 58 - Centro Sclerosi Multipla, UO Neurologia, Ospedale San Giacomo, Monopoli (Bari) | 1 |
| 59 - Clinica Neurologica, ASUGI (Trieste) | 5 |
| 60 - Ospedale Maria Vittoria (Torino) | 1 |
| 62 - Centro Sclerosi Multipla- ASST Grande Ospedale Metropolitano Niguarda (Milano) | 21 |
| 63 - AISM Rehabilitation Center, Italian MS Society, Genoa (Genova) | 37 |
| 64 - AISM Rehabilitation Center, Italian MS Society, Padova (Padova) | 21 |
| 65 - AISM Rehabilitation Center, Italian MS Society, Vicenza (Vicenza) | 23 |
| 66 - AISM Rehabilitation Center, Italian MS Society, Como (Como) | 6 |
| 67 - AISM Rehabilitation Center, Italian MS Society, Aosta (Aosta) | 1 |
| 68 - Centro Provinciale SM Ospedale San Paolo ASL Napoli 1 Centro (Napoli) | 4 |
| 69 - Neurologia e centro per l'epilessia (Napoli) | 3 |
| 70 - Centro Sclerosi Multipla ospedale San Lazzaro (Alba, CN) | 1 |
| 72 - Department of Basic Medical Sciences, Neurosciences and Sense Organs, University of Bari Aldo Moro (Bari) | 3 |
| 75 - P.O. Muscatello (Augusta, SR) | 2 |
| 78 - Istituti Clinici Humanitas (Rozzano, MI) | 2 |
| 79 - S. Andrea (Roma) | 4 |
| 80 - Centro Sclerosi Multipla Ospedale San Carlo Borromeo (Milano) | 1 |
| 81 - OU Neurology Treviso (Treviso) | 1 |
| 82 - Centro Sclerosi Multipla Ospedale Bufalini (Cesena) | 1 |
| 83 - Centro Sclerosi Multipla Rieti (Rieti) | 2 |
| 85 - Centro Malattie Demyelinizzanti, U.O. Neurologia, Azienda Ospedaliero Universitaria Pisana (Pisa) | 2 |
| 86 - SC di Neurofisiopatologia, Azienda Ospedaliera di Perugia (Perugia) | 3 |
| 87 - CRRF "Mons.L.Novarese" (Moncrivello, VC) | 1 |
| 89 - Ospedale Annunziata (Cosenza) | 1 |
| 90 - MS Center, ASST Lecco (Lecco) | 16 |
| 93 - Centro per la Sclerosi Multipla II Clinica Neurologica Università della Campania (Napoli) | 7 |
| 94 - Ambulatorio Dedicato Sclerosi Multipla - Ospedale San Maurizio di Bolzano (Bolzano) | 5 |

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| 96 - Centro Sclerosi Multipla- Azienda Ospedaliera Sant'Andrea (Roma) | 1 |
| 99 - Centro Regionale di Diagnosi e Terapia della Sclerosi Multipla A. Cardarelli (Napoli) | 1 |
| 100 - Centro Sclerosi Multipla Neurologia II AOU Careggi (Firenze) | 1 |

** Seventeen (17) patients were asymptomatic; therefore, they were excluded from the analysis.*

Table S3: Frequency of subjects per Region

| Region | n | Frequency |
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| Lombardia | 455 | 53,9 |
| Veneto | 69 | 8,2 |
| Emilia Romagna | 63 | 7,5 |
| Liguria | 63 | 7,5 |
| Piemonte | 48 | 5,7 |
| Campania | 42 | 5,0 |
| Sicilia | 22 | 2,6 |
| Lazio | 20 | 2,4 |
| Trentino Alto Adige | 13 | 1,5 |
| Abruzzo | 12 | 1,4 |
| Toscana | 10 | 1,2 |
| Umbria | 6 | ,7 |
| Friuli Venezia Giulia | 5 | ,6 |
| Val d'Aosta | 5 | ,6 |
| Calabria | 4 | ,5 |
| Puglia | 4 | ,5 |
| Marche | 3 | ,4 |

Table S4: Exploratory analysis on the effect on the risk of Covid-19 severe disease course of the time passed since last infusion of anti-CD20 therapy and of the anti-CD20 therapy duration. Multivariate Analysis adjusted for macro-region, age, sex, EDSS, disease duration, progressive MS course, BMI and methylprednisolone use within 1 month. N=844

| Variable | OR (95% C.I.) | p |
|--|----------------------|----------|
| Other therapies | 1 (ref) | |
| antiCD20: <3 months since last infusion | 2.77 (1.31-5.85) | 0.012 |
| antiCD20: >=3 months since last infusion | 2.05 (0.97-4.28) | 0.023 |
| Other therapies | 1 (ref) | |
| antiCD20: therapy since =<6 months | 1.65 (0.56-4.90) | 0.36 |
| antiCD20: therapy since 6-12 months | 2.24 (0.91-5.55) | 0.08 |
| antiCD20: therapy >12 months | 2.98 (1.37-6.46) | 0.006 |

*Model run on 844 patients. AntiCD20= Ocrelizumab or Rituximab. Comparison is vs other therapies or no therapy. OR = odds ratio

Table S5: Sensitivity analyses (1): Multivariable ordinal logistic regression models evaluating risk factors for severe Covid-19 (ICU or death vs hospitalization or pneumonia vs milder symptoms not requiring hospitalization and no documented pneumonia) on confirmed cases only.

| Variable | Multivariable Analysis*, n=279 | |
|--|--------------------------------|-------|
| | OR (95% C.I.) | p |
| Age (years) | 1.05 (1.02-1.08) | 0.002 |
| Sex (Female vs Male) | 0.76 (0.42-1.35) | 0.35 |
| MS type (Progressive vs RR) | 1.10 (0.38-3.18) | 0.86 |
| EDSS | 1.16 (0.95-1.43) | 0.15 |
| Disease duration (years) | 1.00 (0.96-1.03) | 0.65 |
| BMI | 0.98 (0.93-1.04) | 0.51 |
| Presence of comorbidities | 0.93 (0.58-1.47) | 0.74 |
| Methylprednisolone 1 month before symptoms onset | 4.55 (1.11-18.53) | 0.035 |
| Disease modifying therapy | | |
| No therapy** | 1 (ref) | |
| Interferon | 0.53 (0.13-2.18) | 0.37 |
| Glatiramer-Acetate | 0.48 (0.11-2.15) | 0.34 |
| Teriflunomide | 0.74 (0.24-2.26) | 0.59 |
| Dimethyl-fumarate | 0.71 (0.26-1.96) | 0.51 |
| Natalizumab | 0.63 (0.17-2.27) | 0.48 |
| Fingolimod | 1.21 (0.43-3.39) | 0.72 |
| Ocrelizumab or Rituximab (antiCD20) | 2.62 (0.99-7.09) | 0.05 |
| Other | 0.47 (0.10-2.15) | 0.33 |

*All the analyses are adjusted for macro-region (Lombardia, Northern Italy including Veneto, Emilia-Romagna, Piemonte, Liguria, and rest of Italy).

**No therapy was chosen as the reference class

OR = odds ratio

Table S6: Sensitivity analyses (2): Multivariable analysis excluding one of the major centers at a time (Brescia, Bergamo, Milan) adjusted for macro-region, age, sex, EDSS, disease duration, progressive MS course, BMI, comorbidities.

| Variable | Multivariable Analysis | |
|--|------------------------|--------|
| | OR (95% C.I.) | p |
| Sensitivity: Leave-one-out (Brescia) (n=736) | | |
| Methylprednisolone 1 month before symptoms | 3.63 (1.39-9.43) | 0.008 |
| Disease modifying therapy | | |
| Other therapies | 1 (ref) | |
| anti-CD20 | 2.03 (1.19-3.73) | 0.02 |
| Sensitivity: Leave-one-out (Bergamo) (n=754) | | |
| Methylprednisolone 1 month before symptoms | 4.37 (1.87-10.16) | 0.001 |
| Disease modifying therapy | | |
| Other therapies | 1 (ref) | |
| anti-CD20 | 2.36 (1.33-4.17) | 0.003 |
| Sensitivity: Leave-one-out (Milan HSR) (n=756) | | |
| Methylprednisolone 1 month before symptoms | 4.73 (2.01-11.11) | <0.001 |
| Disease modifying therapy | | |
| Other therapies | 1 (ref) | |
| anti-CD20 | 2.37 (1.35-4.15) | 0.003 |

Table S7: Sensitivity analyses (3): Multivariable analysis on the RRMS subgroup (n = 698)

| Multivariable Analysis | | |
|---|----------------------|----------|
| Variable | OR (95% C.I.) | p |
| Age (years) | 1.04 (1.02 – 1.07) | 0.002 |
| Sex (Female vs Male) | 0.68 (0.40 – 1.13) | 0.14 |
| EDSS | 1.02 (0.85 – 1.23) | 0.80 |
| Disease duration (years) | 1.01 (0.98 – 1.05) | 0.41 |
| BMI | 0.98 (0.93 – 1.04) | 0.59 |
| Presence of comorbidities | 0.97 (0.52 – 1.78) | 0.91 |
| Methylprednisolone 1 month before symptoms onset | 5.27 (2.04 – 13.64) | 0.001 |
| Disease modifying therapy | | |
| No therapy | 1 (ref) | |
| Ocrelizumab or Rituximab (antiCD20) | 2.87 (1.09 – 7.53) | 0.033 |
| Natalizumab | 1.42 (0.56 – 3.62) | 0.47 |
| Fingolimod | 1.31 (0.47 – 3.68) | 0.61 |
| Dimethyl-fumarate | 1.11 (0.45 – 2.74) | 0.82 |
| Teriflunomide | 0.80 (0.27 – 2.34) | 0.68 |
| Glatiramer-Acetate | 0.83 (0.27 – 2.57) | 0.74 |
| Interferon | 0.69 (0.23 – 2.09) | 0.51 |
| Other | 0.34 (0.04 – 2.95) | 0.33 |

*All the analyses are adjusted for macro-region (Lombardia, Northern Italy including Veneto, Emilia-Romagna, Piemonte, Liguria, and rest of Italy).

**No therapy was chosen as the reference class

OR = odds ratio

Table S8: Sensitivity analyses (4): Multivariable analysis with complete baseline data, without imputation (n=587)

| Variable | Multivariable Analysis* | |
|--|-------------------------|---------|
| | OR (95% C.I.) | p |
| Age (years) | 1.07 (1.03 – 1.10) | < 0.001 |
| Sex (Female vs Male) | 0.92 (0.54 - 1.56) | 0.75 |
| MS type (Progressive vs RR) | 2.19 (0.89 – 5.34) | 0.09 |
| EDSS | 0.85 (0.70 – 1.02) | 0.08 |
| Disease duration (years) | 1.01 (0.98 – 1.04) | 0.47 |
| BMI | 1.00 (0.99 – 1.00) | 0.95 |
| Presence of comorbidities | 1.08 (0.61 – 1.93) | 0.78 |
| Methylprednisolone 1 month before symptoms onset | 6.49 (2.29 – 18.39) | <0.001 |
| Disease modifying therapy | | |
| No therapy** | 1 (ref) | |
| Ocrelizumab or Rituximab (antiCD20) | 2.69 (1.13 – 6.40) | 0.026 |
| Natalizumab | 0.91 (0.28 – 2.90) | 0.87 |
| Fingolimod | 1.45 (0.62 – 3.42) | 0.39 |
| Dimethyl-fumarate | 0.80 (0.31 – 2.09) | 0.65 |
| Teriflunomide | 1.27 (0.46 – 3.51) | 0.64 |
| Glatiramer-Acetate | 0.33 (0.09 – 1.30) | 0.11 |
| Interferon | 0.57 (0.17 – 1.94) | 0.37 |
| Other | 0.55 (0.11 – 2.66) | 0.46 |

*All the analyses are adjusted for macro-region (Lombardia, Northern Italy including Veneto, Emilia-Romagna, Piemonte, Liguria, and rest of Italy).

**No therapy was chosen as the reference class

OR = odds ratio

Table S9: Analysis on hard endpoints: logistic regression model adjusted for region, age, sex, EDSS, disease duration, progressive MS course, BMI to assess the impact of methylprednisolone use one month before symptoms onset and the effect of anti-CD therapy (vs other therapies or no therapy) on the risk of death and on the risk of death or admission to Intensive Care Unit (ICU).

| Endpoint: Death, n=844 | | |
|--------------------------------------|----------------------|----------|
| Variable | OR (95% C.I.) | p |
| Methylprednisolone use | 2.88 (0.18-45.94) | 0.45 |
| antiCD20 | 2.93 (0.43-19.99) | 0.27 |
| Endpoint: ICU or death, n=844 | | |
| Methylprednisolone use | 6.66 (2.05-20.03) | 0.002 |
| antiCD20 | 1.91 (0.80-4.66) | 0.16 |

AntiCD20= Ocrelizumab or Rituximab. Comparison is vs other therapies or no therapy. ICU= Intensive Care Unit

OR = odds ratio

Table S10: : Presentation of the results of the same multivariable ordinal logistic regression models evaluating risk related to disease modifying therapies for severe Covid-19 (ICU or death vs hospitalization or pneumonia vs milder symptoms not requiring hospitalization and no documented pneumonia) presented in Table 4, when Dimethyl fumarate is used as the reference class.

| Variable | Univariable Analysis n=844 | | Multivariable Analysis* n=844 | |
|--|-------------------------------|-------|----------------------------------|------|
| | OR (95% C.I.) | p | OR (95% C.I.) | p |
| Disease modifying therapy | | | | |
| Dimethyl-fumarate ** | 1 (ref) | | 1 (ref) | |
| Interferon | 0.92 (0.39-2.19) | 0.85 | 0.60 (0.24-1.55) | 0.27 |
| Glatiramer-Acetate | 0.87 (0.35-2.17) | 0.77 | 0.68 (0.26-1.78) | 0.59 |
| Teriflunomide | 1.25 (0.54-2.90) | 0.60 | 0.77 (0.31-1.87) | 0.56 |
| Natalizumab | 0.93 (0.41-2.15) | 0.87 | 1.16 (0.49-1.77) | 0.73 |
| Fingolimod | 1.42 (0.69-2.92) | 0.34 | 1.07 (0.49-1.87) | 0.64 |
| Ocrelizumab or Rituximab (antiCD20) | 2.65 (1.38-5.10) | 0.003 | 2.11 (1.03-4.33) | 0.04 |
| No therapy | 2.81 (1.56-5.08) | 0.001 | 0.89 (0.44-1.83) | 0.75 |
| Other | 1.16 (0.41-2.15) | 0.79 | 0.63 (0.20-2.00) | 0.44 |

*The multivariable analysis is adjusted for macro-region (Lombardia, Northern Italy including Veneto, Emilia-Romagna, Piemonte, Liguria, and rest of Italy), age, sex, progressive MS, EDSS, disease duration, BMI, presence of comorbidities, recent methylprednisolone use.

**Dimethyl-fumarate was chosen as the reference class

OR = odds ratio

Table S11: Patients characteristics after PS weighting

| DMT1 | DMT2 | Variable | mean1 | mean2 | SD | Standardized Mean Difference | p-value |
|------------|--------------------|-----------------------|--------|--------|--------|------------------------------|---------|
| No therapy | Interferon | Age | 45.511 | 46.431 | 12.059 | 0.076 | 0.631 |
| No therapy | Interferon | Females | 76.5 | 76.4 | 45.6 | 0.002 | 0.989 |
| No therapy | Interferon | Males | 23.5 | 23.6 | 45.6 | 0.002 | 0.989 |
| No therapy | Interferon | RR MS | 81.5 | 91.3 | 30.3 | 0.324 | 0.07 |
| No therapy | Interferon | Progressive MS | 18.5 | 8.7 | 30.3 | 0.324 | 0.07 |
| No therapy | Interferon | EDSS | 2.795 | 2.493 | 2.081 | 0.145 | 0.363 |
| No therapy | Interferon | Disease duration | 11.823 | 11.354 | 8.627 | 0.054 | 0.722 |
| No therapy | Interferon | BMI | 23.385 | 23.626 | 4.553 | 0.053 | 0.729 |
| No therapy | Interferon | No comorbidities | 78.5 | 76.6 | 39.7 | 0.049 | 0.765 |
| No therapy | Interferon | Comorbidities | 21.5 | 23.4 | 39.7 | 0.049 | 0.765 |
| No therapy | Interferon | No Methylprednisolone | 96.2 | 96.7 | 15.5 | 0.033 | 0.87 |
| No therapy | Interferon | Methylprednisolone | 3.8 | 3.3 | 15.5 | 0.033 | 0.87 |
| No therapy | Glatiramer Acetate | Age | 45.511 | 45.859 | 12.059 | 0.029 | 0.867 |
| No therapy | Glatiramer Acetate | Females | 76.5 | 73.9 | 45.6 | 0.057 | 0.703 |
| No therapy | Glatiramer Acetate | Males | 23.5 | 26.1 | 45.6 | 0.057 | 0.703 |
| No therapy | Glatiramer Acetate | RR MS | 81.5 | 88.2 | 30.3 | 0.222 | 0.343 |
| No therapy | Glatiramer Acetate | Progressive MS | 18.5 | 11.8 | 30.3 | 0.222 | 0.343 |
| No therapy | Glatiramer Acetate | EDSS | 2.795 | 2.531 | 2.081 | 0.127 | 0.474 |
| No therapy | Glatiramer Acetate | Disease duration | 11.823 | 11.564 | 8.627 | 0.03 | 0.852 |
| No therapy | Glatiramer Acetate | BMI | 23.385 | 23.884 | 4.553 | 0.11 | 0.453 |
| No therapy | Glatiramer Acetate | No comorbidities | 78.5 | 82.7 | 39.7 | 0.105 | 0.482 |
| No therapy | Glatiramer Acetate | Comorbidities | 21.5 | 17.3 | 39.7 | 0.105 | 0.482 |
| No therapy | Glatiramer Acetate | No Methylprednisolone | 96.2 | 98.7 | 15.5 | 0.157 | 0.321 |
| No therapy | Glatiramer Acetate | Methylprednisolone | 3.8 | 1.3 | 15.5 | 0.157 | 0.321 |
| No therapy | Teriflunomide | Age | 45.511 | 45.472 | 12.059 | 0.003 | 0.984 |
| No therapy | Teriflunomide | Females | 76.5 | 71.9 | 45.6 | 0.102 | 0.531 |
| No therapy | Teriflunomide | Males | 23.5 | 28.1 | 45.6 | 0.102 | 0.531 |
| No therapy | Teriflunomide | RR MS | 81.5 | 92.6 | 30.3 | 0.367 | 0.096 |
| No therapy | Teriflunomide | Progressive MS | 18.5 | 7.4 | 30.3 | 0.367 | 0.096 |
| No therapy | Teriflunomide | EDSS | 2.795 | 2.471 | 2.081 | 0.156 | 0.318 |
| No therapy | Teriflunomide | Disease duration | 11.823 | 11.049 | 8.627 | 0.09 | 0.563 |
| No therapy | Teriflunomide | BMI | 23.385 | 23.608 | 4.553 | 0.049 | 0.749 |

| | | | | | | | | |
|------------|-------------------|-----------------------|--------|--------|--------|------|-------|-------|
| No therapy | Teriflunomide | | 78.5 | 77.4 | 39.7 | .397 | 0.029 | 0.855 |
| No therapy | Teriflunomide | | 21.5 | 22.6 | 39.7 | .397 | 0.029 | 0.855 |
| No therapy | Teriflunomide | | 96.2 | 97.5 | 15.5 | .155 | 0.082 | 0.633 |
| No therapy | Teriflunomide | | 3.8 | 2.5 | 15.5 | .155 | 0.082 | 0.633 |
| No therapy | Dimethyl Fumarate | Age | 45.511 | 44.322 | 12.059 | | 0.099 | 0.451 |
| No therapy | Dimethyl Fumarate | Females | 76.5 | 68.3 | 45.6 | | 0.18 | 0.173 |
| No therapy | Dimethyl Fumarate | Males | 23.5 | 31.7 | 45.6 | | 0.18 | 0.173 |
| No therapy | Dimethyl Fumarate | RR MS | 81.5 | 87.2 | 30.3 | | 0.189 | 0.336 |
| No therapy | Dimethyl Fumarate | Progressive MS | 18.5 | 12.8 | 30.3 | | 0.189 | 0.336 |
| No therapy | Dimethyl Fumarate | EDSS | 2.795 | 2.68 | 2.081 | | 0.055 | 0.732 |
| No therapy | Dimethyl Fumarate | Disease duration | 11.823 | 11.398 | 8.627 | | 0.049 | 0.703 |
| No therapy | Dimethyl Fumarate | BMI | 23.385 | 23.498 | 4.553 | | 0.025 | 0.851 |
| No therapy | Dimethyl Fumarate | No comorbidities | 78.5 | 80.7 | 39.7 | | 0.054 | 0.701 |
| No therapy | Dimethyl Fumarate | Comorbidities | 21.5 | 19.3 | 39.7 | | 0.054 | 0.701 |
| No therapy | Dimethyl Fumarate | No Methylprednisolone | 96.2 | 98 | 15.5 | | 0.114 | 0.353 |
| No therapy | Dimethyl Fumarate | Methylprednisolone | 3.8 | 2 | 15.5 | | 0.114 | 0.353 |
| No therapy | Fingolimod | Age | 45.511 | 41.461 | 12.059 | | 0.336 | 0.02 |
| No therapy | Fingolimod | Females | 76.5 | 74.6 | 45.6 | | 0.041 | 0.785 |
| No therapy | Fingolimod | Males | 23.5 | 25.4 | 45.6 | | 0.041 | 0.785 |
| No therapy | Fingolimod | RR MS | 81.5 | 97.4 | 30.3 | | 0.526 | 0.015 |
| No therapy | Fingolimod | Progressive MS | 18.5 | 2.6 | 30.3 | | 0.526 | 0.015 |
| No therapy | Fingolimod | EDSS | 2.795 | 2.486 | 2.081 | | 0.149 | 0.282 |
| No therapy | Fingolimod | Disease duration | 11.823 | 10.252 | 8.627 | | 0.182 | 0.196 |
| No therapy | Fingolimod | BMI | 23.385 | 23.474 | 4.553 | | 0.02 | 0.897 |
| No therapy | Fingolimod | No comorbidities | 78.5 | 81.1 | 39.7 | | 0.065 | 0.695 |
| No therapy | Fingolimod | Comorbidities | 21.5 | 18.9 | 39.7 | | 0.065 | 0.695 |
| No therapy | Fingolimod | No Methylprednisolone | 96.2 | 98.7 | 15.5 | | 0.159 | 0.307 |
| No therapy | Fingolimod | Methylprednisolone | 3.8 | 1.3 | 15.5 | | 0.159 | 0.307 |
| No therapy | Natalizumab | Age | 45.511 | 43.729 | 12.059 | | 0.148 | 0.293 |
| No therapy | Natalizumab | Females | 76.5 | 74.4 | 45.6 | | 0.047 | 0.746 |
| No therapy | Natalizumab | Males | 23.5 | 25.6 | 45.6 | | 0.047 | 0.746 |
| No therapy | Natalizumab | RR MS | 81.5 | 88.7 | 30.3 | | 0.238 | 0.12 |
| No therapy | Natalizumab | Progressive MS | 18.5 | 11.3 | 30.3 | | 0.238 | 0.12 |
| No therapy | Natalizumab | EDSS | 2.795 | 2.609 | 2.081 | | 0.09 | 0.484 |
| No therapy | Natalizumab | Disease duration | 11.823 | 11.746 | 8.627 | | 0.009 | 0.949 |
| No therapy | Natalizumab | BMI | 23.385 | 23.659 | 4.553 | | 0.06 | 0.629 |
| No therapy | Natalizumab | No comorbidities | 78.5 | 79.1 | 39.7 | | 0.014 | 0.92 |
| No therapy | Natalizumab | Comorbidities | 21.5 | 20.9 | 39.7 | | 0.014 | 0.92 |
| No therapy | Natalizumab | No Methylprednisolone | 96.2 | 97 | 15.5 | | 0.05 | 0.727 |

| | | | | | | | |
|------------|--------------------|-----------------------|--------|--------|--------|-------|-------|
| No therapy | Natalizumab | Methylprednisolone | 3.8 | 3 | 15.5 | 0.05 | 0.727 |
| No therapy | AntiCD20 | Age | 45.511 | 42.228 | 12.059 | 0.272 | 0.052 |
| No therapy | AntiCD20 | Females | 76.5 | 68.6 | 45.6 | 0.174 | 0.25 |
| No therapy | AntiCD20 | Males | 23.5 | 31.4 | 45.6 | 0.174 | 0.25 |
| No therapy | AntiCD20 | RR MS | 81.5 | 83.5 | 30.3 | 0.066 | 0.654 |
| No therapy | AntiCD20 | Progressive MS | 18.5 | 16.5 | 30.3 | 0.066 | 0.654 |
| No therapy | AntiCD20 | EDSS | 2.795 | 2.716 | 2.081 | 0.038 | 0.779 |
| No therapy | AntiCD20 | Disease duration | 11.823 | 10.481 | 8.627 | 0.156 | 0.252 |
| No therapy | AntiCD20 | BMI | 23.385 | 22.768 | 4.553 | 0.136 | 0.274 |
| No therapy | AntiCD20 | No comorbidities | 78.5 | 83.7 | 39.7 | 0.13 | 0.337 |
| No therapy | AntiCD20 | Comorbidities | 21.5 | 16.3 | 39.7 | 0.13 | 0.337 |
| No therapy | AntiCD20 | No Methylprednisolone | 96.2 | 98.6 | 15.5 | 0.151 | 0.352 |
| No therapy | AntiCD20 | Methylprednisolone | 3.8 | 1.4 | 15.5 | 0.151 | 0.352 |
| No therapy | Other | Age | 45.511 | 44.002 | 12.059 | 0.125 | 0.508 |
| No therapy | Other | Females | 76.5 | 72 | 45.6 | 0.1 | 0.599 |
| No therapy | Other | Males | 23.5 | 28 | 45.6 | 0.1 | 0.599 |
| No therapy | Other | RR MS | 81.5 | 75.3 | 30.3 | 0.204 | 0.371 |
| No therapy | Other | Progressive MS | 18.5 | 24.7 | 30.3 | 0.204 | 0.371 |
| No therapy | Other | EDSS | 2.795 | 3.217 | 2.081 | 0.203 | 0.291 |
| No therapy | Other | Disease duration | 11.823 | 12.682 | 8.627 | 0.1 | 0.589 |
| No therapy | Other | BMI | 23.385 | 23.051 | 4.553 | 0.073 | 0.704 |
| No therapy | Other | No comorbidities | 78.5 | 79.7 | 39.7 | 0.029 | 0.88 |
| No therapy | Other | Comorbidities | 21.5 | 20.3 | 39.7 | 0.029 | 0.88 |
| No therapy | Other | No Methylprednisolone | 96.2 | 95.2 | 15.5 | 0.065 | 0.794 |
| No therapy | Other | Methylprednisolone | 3.8 | 4.8 | 15.5 | 0.065 | 0.794 |
| Interferon | Glatiramer Acetate | Age | 46.431 | 45.859 | 12.059 | 0.047 | 0.806 |
| Interferon | Glatiramer Acetate | Females | 76.4 | 73.9 | 45.6 | 0.055 | 0.737 |
| Interferon | Glatiramer Acetate | Males | 23.6 | 26.1 | 45.6 | 0.055 | 0.737 |
| Interferon | Glatiramer Acetate | RR MS | 91.3 | 88.2 | 30.3 | 0.102 | 0.628 |
| Interferon | Glatiramer Acetate | Progressive MS | 8.7 | 11.8 | 30.3 | 0.102 | 0.628 |
| Interferon | Glatiramer Acetate | EDSS | 2.493 | 2.531 | 2.081 | 0.018 | 0.929 |
| Interferon | Glatiramer Acetate | Disease duration | 11.354 | 11.564 | 8.627 | 0.024 | 0.894 |
| Interferon | Glatiramer Acetate | BMI | 23.626 | 23.884 | 4.553 | 0.057 | 0.746 |
| Interferon | Glatiramer Acetate | No comorbidities | 76.6 | 82.7 | 39.7 | 0.154 | 0.379 |
| Interferon | Glatiramer Acetate | Comorbidities | 23.4 | 17.3 | 39.7 | 0.154 | 0.379 |
| Interferon | Glatiramer Acetate | No Methylprednisolone | 96.7 | 98.7 | 15.5 | 0.123 | 0.473 |
| Interferon | Glatiramer Acetate | Methylprednisolone | 3.3 | 1.3 | 15.5 | 0.123 | 0.473 |
| Interferon | Teriflunomide | Age | 46.431 | 45.472 | 12.059 | 0.08 | 0.67 |
| Interferon | Teriflunomide | Females | 76.4 | 71.9 | 45.6 | 0.1 | 0.572 |

| | | | | | | | |
|------------|-------------------|-----------------------|--------|--------|--------|-------|-------|
| Interferon | Teriflunomide | Males | 23.6 | 28.1 | 45.6 | 0.1 | 0.572 |
| Interferon | Teriflunomide | RR MS | 91.3 | 92.6 | 30.3 | 0.044 | 0.815 |
| Interferon | Teriflunomide | Progressive MS | 8.7 | 7.4 | 30.3 | 0.044 | 0.815 |
| Interferon | Teriflunomide | EDSS | 2.493 | 2.471 | 2.081 | 0.011 | 0.955 |
| Interferon | Teriflunomide | Disease duration | 11.354 | 11.049 | 8.627 | 0.035 | 0.841 |
| Interferon | Teriflunomide | BMI | 23.626 | 23.608 | 4.553 | 0.004 | 0.983 |
| Interferon | Teriflunomide | No comorbidities | 76.6 | 77.4 | 39.7 | 0.02 | 0.916 |
| Interferon | Teriflunomide | Comorbidities | 23.4 | 22.6 | 39.7 | 0.02 | 0.916 |
| Interferon | Teriflunomide | No Methylprednisolone | 96.7 | 97.5 | 15.5 | 0.048 | 0.81 |
| Interferon | Teriflunomide | Methylprednisolone | 3.3 | 2.5 | 15.5 | 0.048 | 0.81 |
| Interferon | Dimethyl Fumarate | Age | 46.431 | 44.322 | 12.059 | 0.175 | 0.265 |
| Interferon | Dimethyl Fumarate | Females | 76.4 | 68.3 | 45.6 | 0.178 | 0.234 |
| Interferon | Dimethyl Fumarate | Males | 23.6 | 31.7 | 45.6 | 0.178 | 0.234 |
| Interferon | Dimethyl Fumarate | RR MS | 91.3 | 87.2 | 30.3 | 0.134 | 0.486 |
| Interferon | Dimethyl Fumarate | Progressive MS | 8.7 | 12.8 | 30.3 | 0.134 | 0.486 |
| Interferon | Dimethyl Fumarate | EDSS | 2.493 | 2.68 | 2.081 | 0.09 | 0.64 |
| Interferon | Dimethyl Fumarate | Disease duration | 11.354 | 11.398 | 8.627 | 0.005 | 0.974 |
| Interferon | Dimethyl Fumarate | BMI | 23.626 | 23.498 | 4.553 | 0.028 | 0.864 |
| Interferon | Dimethyl Fumarate | No comorbidities | 76.6 | 80.7 | 39.7 | 0.103 | 0.54 |
| Interferon | Dimethyl Fumarate | Comorbidities | 23.4 | 19.3 | 39.7 | 0.103 | 0.54 |
| Interferon | Dimethyl Fumarate | No Methylprednisolone | 96.7 | 98 | 15.5 | 0.081 | 0.609 |
| Interferon | Dimethyl Fumarate | Methylprednisolone | 3.3 | 2 | 15.5 | 0.081 | 0.609 |
| Interferon | Fingolimod | Age | 46.431 | 41.461 | 12.059 | 0.412 | 0.015 |
| Interferon | Fingolimod | Females | 76.4 | 74.6 | 45.6 | 0.039 | 0.812 |
| Interferon | Fingolimod | Males | 23.6 | 25.4 | 45.6 | 0.039 | 0.812 |
| Interferon | Fingolimod | RR MS | 91.3 | 97.4 | 30.3 | 0.202 | 0.218 |
| Interferon | Fingolimod | Progressive MS | 8.7 | 2.6 | 30.3 | 0.202 | 0.218 |
| Interferon | Fingolimod | EDSS | 2.493 | 2.486 | 2.081 | 0.003 | 0.984 |
| Interferon | Fingolimod | Disease duration | 11.354 | 10.252 | 8.627 | 0.128 | 0.437 |
| Interferon | Fingolimod | BMI | 23.626 | 23.474 | 4.553 | 0.033 | 0.853 |
| Interferon | Fingolimod | No comorbidities | 76.6 | 81.1 | 39.7 | 0.114 | 0.551 |
| Interferon | Fingolimod | Comorbidities | 23.4 | 18.9 | 39.7 | 0.114 | 0.551 |
| Interferon | Fingolimod | No Methylprednisolone | 96.7 | 98.7 | 15.5 | 0.126 | 0.459 |
| Interferon | Fingolimod | Methylprednisolone | 3.3 | 1.3 | 15.5 | 0.126 | 0.459 |
| Interferon | Natalizumab | Age | 46.431 | 43.729 | 12.059 | 0.224 | 0.175 |
| Interferon | Natalizumab | Females | 76.4 | 74.4 | 45.6 | 0.045 | 0.778 |
| Interferon | Natalizumab | Males | 23.6 | 25.6 | 45.6 | 0.045 | 0.778 |
| Interferon | Natalizumab | RR MS | 91.3 | 88.7 | 30.3 | 0.085 | 0.605 |
| Interferon | Natalizumab | Progressive MS | 8.7 | 11.3 | 30.3 | 0.085 | 0.605 |

| | | | | | | | |
|--------------------|---------------|-----------------------|--------|--------|--------|-------|-------|
| Interferon | Natalizumab | EDSS | 2.493 | 2.609 | 2.081 | 0.056 | 0.736 |
| Interferon | Natalizumab | Disease duration | 11.354 | 11.746 | 8.627 | 0.045 | 0.78 |
| Interferon | Natalizumab | BMI | 23.626 | 23.659 | 4.553 | 0.007 | 0.963 |
| Interferon | Natalizumab | No comorbidities | 76.6 | 79.1 | 39.7 | 0.064 | 0.714 |
| Interferon | Natalizumab | Comorbidities | 23.4 | 20.9 | 39.7 | 0.064 | 0.714 |
| Interferon | Natalizumab | No Methylprednisolone | 96.7 | 97 | 15.5 | 0.017 | 0.928 |
| Interferon | Natalizumab | Methylprednisolone | 3.3 | 3 | 15.5 | 0.017 | 0.928 |
| Interferon | AntiCD20 | Age | 46.431 | 42.228 | 12.059 | 0.349 | 0.035 |
| Interferon | AntiCD20 | Females | 76.4 | 68.6 | 45.6 | 0.172 | 0.303 |
| Interferon | AntiCD20 | Males | 23.6 | 31.4 | 45.6 | 0.172 | 0.303 |
| Interferon | AntiCD20 | RR MS | 91.3 | 83.5 | 30.3 | 0.258 | 0.154 |
| Interferon | AntiCD20 | Progressive MS | 8.7 | 16.5 | 30.3 | 0.258 | 0.154 |
| Interferon | AntiCD20 | EDSS | 2.493 | 2.716 | 2.081 | 0.107 | 0.531 |
| Interferon | AntiCD20 | Disease duration | 11.354 | 10.481 | 8.627 | 0.101 | 0.527 |
| Interferon | AntiCD20 | BMI | 23.626 | 22.768 | 4.553 | 0.188 | 0.232 |
| Interferon | AntiCD20 | No comorbidities | 76.6 | 83.7 | 39.7 | 0.179 | 0.267 |
| Interferon | AntiCD20 | Comorbidities | 23.4 | 16.3 | 39.7 | 0.179 | 0.267 |
| Interferon | AntiCD20 | No Methylprednisolone | 96.7 | 98.6 | 15.5 | 0.118 | 0.506 |
| Interferon | AntiCD20 | Methylprednisolone | 3.3 | 1.4 | 15.5 | 0.118 | 0.506 |
| Interferon | Other | Age | 46.431 | 44.002 | 12.059 | 0.201 | 0.335 |
| Interferon | Other | Females | 76.4 | 72 | 45.6 | 0.098 | 0.629 |
| Interferon | Other | Males | 23.6 | 28 | 45.6 | 0.098 | 0.629 |
| Interferon | Other | RR MS | 91.3 | 75.3 | 30.3 | 0.527 | 0.03 |
| Interferon | Other | Progressive MS | 8.7 | 24.7 | 30.3 | 0.527 | 0.03 |
| Interferon | Other | EDSS | 2.493 | 3.217 | 2.081 | 0.348 | 0.114 |
| Interferon | Other | Disease duration | 11.354 | 12.682 | 8.627 | 0.154 | 0.45 |
| Interferon | Other | BMI | 23.626 | 23.051 | 4.553 | 0.126 | 0.56 |
| Interferon | Other | No comorbidities | 76.6 | 79.7 | 39.7 | 0.078 | 0.72 |
| Interferon | Other | Comorbidities | 23.4 | 20.3 | 39.7 | 0.078 | 0.72 |
| Interferon | Other | No Methylprednisolone | 96.7 | 95.2 | 15.5 | 0.098 | 0.73 |
| Interferon | Other | Methylprednisolone | 3.3 | 4.8 | 15.5 | 0.098 | 0.73 |
| Glatiramer Acetate | Teriflunomide | Age | 45.859 | 45.472 | 12.059 | 0.032 | 0.871 |
| Glatiramer Acetate | Teriflunomide | Females | 73.9 | 71.9 | 45.6 | 0.045 | 0.805 |
| Glatiramer Acetate | Teriflunomide | Males | 26.1 | 28.1 | 45.6 | 0.045 | 0.805 |
| Glatiramer Acetate | Teriflunomide | RR MS | 88.2 | 92.6 | 30.3 | 0.146 | 0.525 |
| Glatiramer Acetate | Teriflunomide | Progressive MS | 11.8 | 7.4 | 30.3 | 0.146 | 0.525 |
| Glatiramer Acetate | Teriflunomide | EDSS | 2.531 | 2.471 | 2.081 | 0.029 | 0.886 |
| Glatiramer Acetate | Teriflunomide | Disease duration | 11.564 | 11.049 | 8.627 | 0.06 | 0.745 |
| Glatiramer Acetate | Teriflunomide | BMI | 23.884 | 23.608 | 4.553 | 0.061 | 0.73 |
| Glatiramer Acetate | Teriflunomide | No comorbidities | 82.7 | 77.4 | 39.7 | 0.134 | 0.432 |
| Glatiramer Acetate | Teriflunomide | Comorbidities | 17.3 | 22.6 | 39.7 | 0.134 | 0.432 |

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|--------------------|-------------------|-----------------------|--------|--------|--------|-------|-------|
| Glatiramer Acetate | Teriflunomide | No Methylprednisolone | 98.7 | 97.5 | 15.5 | 0.075 | 0.611 |
| Glatiramer Acetate | Teriflunomide | Methylprednisolone | 1.3 | 2.5 | 15.5 | 0.075 | 0.611 |
| Glatiramer Acetate | Dimethyl Fumarate | Age | 45.859 | 44.322 | 12.059 | 0.128 | 0.454 |
| Glatiramer Acetate | Dimethyl Fumarate | Females | 73.9 | 68.3 | 45.6 | 0.123 | 0.422 |
| Glatiramer Acetate | Dimethyl Fumarate | Males | 26.1 | 31.7 | 45.6 | 0.123 | 0.422 |
| Glatiramer Acetate | Dimethyl Fumarate | RR MS | 88.2 | 87.2 | 30.3 | 0.032 | 0.894 |
| Glatiramer Acetate | Dimethyl Fumarate | Progressive MS | 11.8 | 12.8 | 30.3 | 0.032 | 0.894 |
| Glatiramer Acetate | Dimethyl Fumarate | EDSS | 2.531 | 2.68 | 2.081 | 0.072 | 0.73 |
| Glatiramer Acetate | Dimethyl Fumarate | Disease duration | 11.564 | 11.398 | 8.627 | 0.019 | 0.905 |
| Glatiramer Acetate | Dimethyl Fumarate | BMI | 23.884 | 23.498 | 4.553 | 0.085 | 0.591 |
| Glatiramer Acetate | Dimethyl Fumarate | No comorbidities | 82.7 | 80.7 | 39.7 | 0.051 | 0.737 |
| Glatiramer Acetate | Dimethyl Fumarate | Comorbidities | 17.3 | 19.3 | 39.7 | 0.051 | 0.737 |
| Glatiramer Acetate | Dimethyl Fumarate | No Methylprednisolone | 98.7 | 98 | 15.5 | 0.043 | 0.721 |
| Glatiramer Acetate | Dimethyl Fumarate | Methylprednisolone | 1.3 | 2 | 15.5 | 0.043 | 0.721 |
| Glatiramer Acetate | Fingolimod | Age | 45.859 | 41.461 | 12.059 | 0.365 | 0.045 |
| Glatiramer Acetate | Fingolimod | Females | 73.9 | 74.6 | 45.6 | 0.016 | 0.924 |
| Glatiramer Acetate | Fingolimod | Males | 26.1 | 25.4 | 45.6 | 0.016 | 0.924 |
| Glatiramer Acetate | Fingolimod | RR MS | 88.2 | 97.4 | 30.3 | 0.304 | 0.12 |
| Glatiramer Acetate | Fingolimod | Progressive MS | 11.8 | 2.6 | 30.3 | 0.304 | 0.12 |
| Glatiramer Acetate | Fingolimod | EDSS | 2.531 | 2.486 | 2.081 | 0.022 | 0.908 |
| Glatiramer Acetate | Fingolimod | Disease duration | 11.564 | 10.252 | 8.627 | 0.152 | 0.376 |
| Glatiramer Acetate | Fingolimod | BMI | 23.884 | 23.474 | 4.553 | 0.09 | 0.604 |
| Glatiramer Acetate | Fingolimod | No comorbidities | 82.7 | 81.1 | 39.7 | 0.04 | 0.817 |
| Glatiramer Acetate | Fingolimod | Comorbidities | 17.3 | 18.9 | 39.7 | 0.04 | 0.817 |
| Glatiramer Acetate | Fingolimod | No Methylprednisolone | 98.7 | 98.7 | 15.5 | 0.002 | 0.986 |
| Glatiramer Acetate | Fingolimod | Methylprednisolone | 1.3 | 1.3 | 15.5 | 0.002 | 0.986 |
| Glatiramer Acetate | Natalizumab | Age | 45.859 | 43.729 | 12.059 | 0.177 | 0.322 |
| Glatiramer Acetate | Natalizumab | Females | 73.9 | 74.4 | 45.6 | 0.011 | 0.948 |

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|--------------------|-------------|-----------------------|--------|--------|--------|-------|-------|
| Glatiramer Acetate | Natalizumab | Males | 26.1 | 25.6 | 45.6 | 0.011 | 0.948 |
| Glatiramer Acetate | Natalizumab | RR MS | 88.2 | 88.7 | 30.3 | 0.017 | 0.937 |
| Glatiramer Acetate | Natalizumab | Progressive MS | 11.8 | 11.3 | 30.3 | 0.017 | 0.937 |
| Glatiramer Acetate | Natalizumab | EDSS | 2.531 | 2.609 | 2.081 | 0.037 | 0.838 |
| Glatiramer Acetate | Natalizumab | Disease duration | 11.564 | 11.746 | 8.627 | 0.021 | 0.901 |
| Glatiramer Acetate | Natalizumab | BMI | 23.884 | 23.659 | 4.553 | 0.05 | 0.743 |
| Glatiramer Acetate | Natalizumab | No comorbidities | 82.7 | 79.1 | 39.7 | 0.09 | 0.565 |
| Glatiramer Acetate | Natalizumab | Comorbidities | 17.3 | 20.9 | 39.7 | 0.09 | 0.565 |
| Glatiramer Acetate | Natalizumab | No Methylprednisolone | 98.7 | 97 | 15.5 | 0.106 | 0.462 |
| Glatiramer Acetate | Natalizumab | Methylprednisolone | 1.3 | 3 | 15.5 | 0.106 | 0.462 |
| Glatiramer Acetate | AntiCD20 | Age | 45.859 | 42.228 | 12.059 | 0.301 | 0.091 |
| Glatiramer Acetate | AntiCD20 | Females | 73.9 | 68.6 | 45.6 | 0.117 | 0.494 |
| Glatiramer Acetate | AntiCD20 | Males | 26.1 | 31.4 | 45.6 | 0.117 | 0.494 |
| Glatiramer Acetate | AntiCD20 | RR MS | 88.2 | 83.5 | 30.3 | 0.156 | 0.504 |
| Glatiramer Acetate | AntiCD20 | Progressive MS | 11.8 | 16.5 | 30.3 | 0.156 | 0.504 |
| Glatiramer Acetate | AntiCD20 | EDSS | 2.531 | 2.716 | 2.081 | 0.089 | 0.635 |
| Glatiramer Acetate | AntiCD20 | Disease duration | 11.564 | 10.481 | 8.627 | 0.126 | 0.453 |
| Glatiramer Acetate | AntiCD20 | BMI | 23.884 | 22.768 | 4.553 | 0.245 | 0.106 |
| Glatiramer Acetate | AntiCD20 | No comorbidities | 82.7 | 83.7 | 39.7 | 0.025 | 0.862 |
| Glatiramer Acetate | AntiCD20 | Comorbidities | 17.3 | 16.3 | 39.7 | 0.025 | 0.862 |
| Glatiramer Acetate | AntiCD20 | No Methylprednisolone | 98.7 | 98.6 | 15.5 | 0.006 | 0.965 |
| Glatiramer Acetate | AntiCD20 | Methylprednisolone | 1.3 | 1.4 | 15.5 | 0.006 | 0.965 |
| Glatiramer Acetate | Other | Age | 45.859 | 44.002 | 12.059 | 0.154 | 0.482 |
| Glatiramer Acetate | Other | Females | 73.9 | 72 | 45.6 | 0.043 | 0.837 |
| Glatiramer Acetate | Other | Males | 26.1 | 28 | 45.6 | 0.043 | 0.837 |
| Glatiramer Acetate | Other | RR MS | 88.2 | 75.3 | 30.3 | 0.426 | 0.161 |
| Glatiramer Acetate | Other | Progressive MS | 11.8 | 24.7 | 30.3 | 0.426 | 0.161 |
| Glatiramer Acetate | Other | EDSS | 2.531 | 3.217 | 2.081 | 0.329 | 0.157 |

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|--------------------|-------------------|-----------------------|--------|--------|--------|-------|-------|
| Glatiramer Acetate | Other | Disease duration | 11.564 | 12.682 | 8.627 | 0.13 | 0.536 |
| Glatiramer Acetate | Other | BMI | 23.884 | 23.051 | 4.553 | 0.183 | 0.389 |
| Glatiramer Acetate | Other | No comorbidities | 82.7 | 79.7 | 39.7 | 0.076 | 0.7 |
| Glatiramer Acetate | Other | Comorbidities | 17.3 | 20.3 | 39.7 | 0.076 | 0.7 |
| Glatiramer Acetate | Other | No Methylprednisolone | 98.7 | 95.2 | 15.5 | 0.222 | 0.291 |
| Glatiramer Acetate | Other | Methylprednisolone | 1.3 | 4.8 | 15.5 | 0.222 | 0.291 |
| Teriflunomide | Dimethyl Fumarate | Age | 45.472 | 44.322 | 12.059 | 0.095 | 0.559 |
| Teriflunomide | Dimethyl Fumarate | Females | 71.9 | 68.3 | 45.6 | 0.078 | 0.641 |
| Teriflunomide | Dimethyl Fumarate | Males | 28.1 | 31.7 | 45.6 | 0.078 | 0.641 |
| Teriflunomide | Dimethyl Fumarate | RR MS | 92.6 | 87.2 | 30.3 | 0.178 | 0.413 |
| Teriflunomide | Dimethyl Fumarate | Progressive MS | 7.4 | 12.8 | 30.3 | 0.178 | 0.413 |
| Teriflunomide | Dimethyl Fumarate | EDSS | 2.471 | 2.68 | 2.081 | 0.101 | 0.596 |
| Teriflunomide | Dimethyl Fumarate | Disease duration | 11.049 | 11.398 | 8.627 | 0.04 | 0.796 |
| Teriflunomide | Dimethyl Fumarate | BMI | 23.608 | 23.498 | 4.553 | 0.024 | 0.883 |
| Teriflunomide | Dimethyl Fumarate | No comorbidities | 77.4 | 80.7 | 39.7 | 0.083 | 0.612 |
| Teriflunomide | Dimethyl Fumarate | Comorbidities | 22.6 | 19.3 | 39.7 | 0.083 | 0.612 |
| Teriflunomide | Dimethyl Fumarate | No Methylprednisolone | 97.5 | 98 | 15.5 | 0.032 | 0.807 |
| Teriflunomide | Dimethyl Fumarate | Methylprednisolone | 2.5 | 2 | 15.5 | 0.032 | 0.807 |
| Teriflunomide | Fingolimod | Age | 45.472 | 41.461 | 12.059 | 0.333 | 0.058 |
| Teriflunomide | Fingolimod | Females | 71.9 | 74.6 | 45.6 | 0.061 | 0.737 |
| Teriflunomide | Fingolimod | Males | 28.1 | 25.4 | 45.6 | 0.061 | 0.737 |
| Teriflunomide | Fingolimod | RR MS | 92.6 | 97.4 | 30.3 | 0.158 | 0.33 |
| Teriflunomide | Fingolimod | Progressive MS | 7.4 | 2.6 | 30.3 | 0.158 | 0.33 |
| Teriflunomide | Fingolimod | EDSS | 2.471 | 2.486 | 2.081 | 0.007 | 0.966 |
| Teriflunomide | Fingolimod | Disease duration | 11.049 | 10.252 | 8.627 | 0.092 | 0.579 |
| Teriflunomide | Fingolimod | BMI | 23.608 | 23.474 | 4.553 | 0.029 | 0.87 |
| Teriflunomide | Fingolimod | No comorbidities | 77.4 | 81.1 | 39.7 | 0.094 | 0.615 |
| Teriflunomide | Fingolimod | Comorbidities | 22.6 | 18.9 | 39.7 | 0.094 | 0.615 |
| Teriflunomide | Fingolimod | No Methylprednisolone | 97.5 | 98.7 | 15.5 | 0.077 | 0.596 |
| Teriflunomide | Fingolimod | Methylprednisolone | 2.5 | 1.3 | 15.5 | 0.077 | 0.596 |
| Teriflunomide | Natalizumab | Age | 45.472 | 43.729 | 12.059 | 0.145 | 0.399 |
| Teriflunomide | Natalizumab | Females | 71.9 | 74.4 | 45.6 | 0.055 | 0.752 |
| Teriflunomide | Natalizumab | Males | 28.1 | 25.6 | 45.6 | 0.055 | 0.752 |
| Teriflunomide | Natalizumab | RR MS | 92.6 | 88.7 | 30.3 | 0.129 | 0.503 |
| Teriflunomide | Natalizumab | Progressive MS | 7.4 | 11.3 | 30.3 | 0.129 | 0.503 |

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|-------------------|-------------|-----------------------|--------|--------|--------|-------|-------|
| Teriflunomide | Natalizumab | EDSS | 2.471 | 2.609 | 2.081 | 0.066 | 0.682 |
| Teriflunomide | Natalizumab | Disease duration | 11.049 | 11.746 | 8.627 | 0.081 | 0.623 |
| Teriflunomide | Natalizumab | BMI | 23.608 | 23.659 | 4.553 | 0.011 | 0.944 |
| Teriflunomide | Natalizumab | No comorbidities | 77.4 | 79.1 | 39.7 | 0.044 | 0.796 |
| Teriflunomide | Natalizumab | Comorbidities | 22.6 | 20.9 | 39.7 | 0.044 | 0.796 |
| Teriflunomide | Natalizumab | No Methylprednisolone | 97.5 | 97 | 15.5 | 0.031 | 0.844 |
| Teriflunomide | Natalizumab | Methylprednisolone | 2.5 | 3 | 15.5 | 0.031 | 0.844 |
| Teriflunomide | AntiCD20 | Age | 45.472 | 42.228 | 12.059 | 0.269 | 0.116 |
| Teriflunomide | AntiCD20 | Females | 71.9 | 68.6 | 45.6 | 0.072 | 0.696 |
| Teriflunomide | AntiCD20 | Males | 28.1 | 31.4 | 45.6 | 0.072 | 0.696 |
| Teriflunomide | AntiCD20 | RR MS | 92.6 | 83.5 | 30.3 | 0.302 | 0.167 |
| Teriflunomide | AntiCD20 | Progressive MS | 7.4 | 16.5 | 30.3 | 0.302 | 0.167 |
| Teriflunomide | AntiCD20 | EDSS | 2.471 | 2.716 | 2.081 | 0.118 | 0.482 |
| Teriflunomide | AntiCD20 | Disease duration | 11.049 | 10.481 | 8.627 | 0.066 | 0.684 |
| Teriflunomide | AntiCD20 | BMI | 23.608 | 22.768 | 4.553 | 0.185 | 0.243 |
| Teriflunomide | AntiCD20 | No comorbidities | 77.4 | 83.7 | 39.7 | 0.159 | 0.312 |
| Teriflunomide | AntiCD20 | Comorbidities | 22.6 | 16.3 | 39.7 | 0.159 | 0.312 |
| Teriflunomide | AntiCD20 | No Methylprednisolone | 97.5 | 98.6 | 15.5 | 0.07 | 0.648 |
| Teriflunomide | AntiCD20 | Methylprednisolone | 2.5 | 1.4 | 15.5 | 0.07 | 0.648 |
| Teriflunomide | Other | Age | 45.472 | 44.002 | 12.059 | 0.122 | 0.569 |
| Teriflunomide | Other | Females | 71.9 | 72 | 45.6 | 0.002 | 0.992 |
| Teriflunomide | Other | Males | 28.1 | 28 | 45.6 | 0.002 | 0.992 |
| Teriflunomide | Other | RR MS | 92.6 | 75.3 | 30.3 | 0.571 | 0.042 |
| Teriflunomide | Other | Progressive MS | 7.4 | 24.7 | 30.3 | 0.571 | 0.042 |
| Teriflunomide | Other | EDSS | 2.471 | 3.217 | 2.081 | 0.359 | 0.099 |
| Teriflunomide | Other | Disease duration | 11.049 | 12.682 | 8.627 | 0.189 | 0.357 |
| Teriflunomide | Other | BMI | 23.608 | 23.051 | 4.553 | 0.122 | 0.573 |
| Teriflunomide | Other | No comorbidities | 77.4 | 79.7 | 39.7 | 0.058 | 0.785 |
| Teriflunomide | Other | Comorbidities | 22.6 | 20.3 | 39.7 | 0.058 | 0.785 |
| Teriflunomide | Other | No Methylprednisolone | 97.5 | 95.2 | 15.5 | 0.146 | 0.549 |
| Teriflunomide | Other | Methylprednisolone | 2.5 | 4.8 | 15.5 | 0.146 | 0.549 |
| Dimethyl Fumarate | Fingolimod | Age | 44.322 | 41.461 | 12.059 | 0.237 | 0.095 |
| Dimethyl Fumarate | Fingolimod | Females | 68.3 | 74.6 | 45.6 | 0.139 | 0.366 |
| Dimethyl Fumarate | Fingolimod | Males | 31.7 | 25.4 | 45.6 | 0.139 | 0.366 |
| Dimethyl Fumarate | Fingolimod | RR MS | 87.2 | 97.4 | 30.3 | 0.337 | 0.083 |
| Dimethyl Fumarate | Fingolimod | Progressive MS | 12.8 | 2.6 | 30.3 | 0.337 | 0.083 |
| Dimethyl Fumarate | Fingolimod | EDSS | 2.68 | 2.486 | 2.081 | 0.093 | 0.594 |
| Dimethyl Fumarate | Fingolimod | Disease duration | 11.398 | 10.252 | 8.627 | 0.133 | 0.352 |
| Dimethyl Fumarate | Fingolimod | BMI | 23.498 | 23.474 | 4.553 | 0.005 | 0.974 |
| Dimethyl Fumarate | Fingolimod | No comorbidities | 80.7 | 81.1 | 39.7 | 0.011 | 0.947 |
| Dimethyl Fumarate | Fingolimod | Comorbidities | 19.3 | 18.9 | 39.7 | 0.011 | 0.947 |

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|-------------------|-------------|-----------------------|--------|--------|--------|-------|-------|
| Dimethyl Fumarate | Fingolimod | No Methylprednisolone | 98 | 98.7 | 15.5 | 0.045 | 0.704 |
| Dimethyl Fumarate | Fingolimod | Methylprednisolone | 2 | 1.3 | 15.5 | 0.045 | 0.704 |
| Dimethyl Fumarate | Natalizumab | Age | 44.322 | 43.729 | 12.059 | 0.049 | 0.722 |
| Dimethyl Fumarate | Natalizumab | Females | 68.3 | 74.4 | 45.6 | 0.133 | 0.36 |
| Dimethyl Fumarate | Natalizumab | Males | 31.7 | 25.6 | 45.6 | 0.133 | 0.36 |
| Dimethyl Fumarate | Natalizumab | RR MS | 87.2 | 88.7 | 30.3 | 0.049 | 0.793 |
| Dimethyl Fumarate | Natalizumab | Progressive MS | 12.8 | 11.3 | 30.3 | 0.049 | 0.793 |
| Dimethyl Fumarate | Natalizumab | EDSS | 2.68 | 2.609 | 2.081 | 0.034 | 0.838 |
| Dimethyl Fumarate | Natalizumab | Disease duration | 11.398 | 11.746 | 8.627 | 0.04 | 0.774 |
| Dimethyl Fumarate | Natalizumab | BMI | 23.498 | 23.659 | 4.553 | 0.035 | 0.798 |
| Dimethyl Fumarate | Natalizumab | No comorbidities | 80.7 | 79.1 | 39.7 | 0.039 | 0.792 |
| Dimethyl Fumarate | Natalizumab | Comorbidities | 19.3 | 20.9 | 39.7 | 0.039 | 0.792 |
| Dimethyl Fumarate | Natalizumab | No Methylprednisolone | 98 | 97 | 15.5 | 0.064 | 0.584 |
| Dimethyl Fumarate | Natalizumab | Methylprednisolone | 2 | 3 | 15.5 | 0.064 | 0.584 |
| Dimethyl Fumarate | AntiCD20 | Age | 44.322 | 42.228 | 12.059 | 0.174 | 0.206 |
| Dimethyl Fumarate | AntiCD20 | Females | 68.3 | 68.6 | 45.6 | 0.006 | 0.969 |
| Dimethyl Fumarate | AntiCD20 | Males | 31.7 | 31.4 | 45.6 | 0.006 | 0.969 |
| Dimethyl Fumarate | AntiCD20 | RR MS | 87.2 | 83.5 | 30.3 | 0.124 | 0.538 |
| Dimethyl Fumarate | AntiCD20 | Progressive MS | 12.8 | 16.5 | 30.3 | 0.124 | 0.538 |
| Dimethyl Fumarate | AntiCD20 | EDSS | 2.68 | 2.716 | 2.081 | 0.017 | 0.919 |
| Dimethyl Fumarate | AntiCD20 | Disease duration | 11.398 | 10.481 | 8.627 | 0.106 | 0.44 |
| Dimethyl Fumarate | AntiCD20 | BMI | 23.498 | 22.768 | 4.553 | 0.16 | 0.244 |
| Dimethyl Fumarate | AntiCD20 | No comorbidities | 80.7 | 83.7 | 39.7 | 0.076 | 0.583 |
| Dimethyl Fumarate | AntiCD20 | Comorbidities | 19.3 | 16.3 | 39.7 | 0.076 | 0.583 |
| Dimethyl Fumarate | AntiCD20 | No Methylprednisolone | 98 | 98.6 | 15.5 | 0.037 | 0.763 |
| Dimethyl Fumarate | AntiCD20 | Methylprednisolone | 2 | 1.4 | 15.5 | 0.037 | 0.763 |
| Dimethyl Fumarate | Other | Age | 44.322 | 44.002 | 12.059 | 0.027 | 0.887 |
| Dimethyl Fumarate | Other | Females | 68.3 | 72 | 45.6 | 0.08 | 0.686 |

| | | | | | | | |
|-------------------|-------------|-----------------------|--------|--------|--------|-------|-------|
| Dimethyl Fumarate | Other | Males | 31.7 | 28 | 45.6 | 0.08 | 0.686 |
| Dimethyl Fumarate | Other | RR MS | 87.2 | 75.3 | 30.3 | 0.393 | 0.145 |
| Dimethyl Fumarate | Other | Progressive MS | 12.8 | 24.7 | 30.3 | 0.393 | 0.145 |
| Dimethyl Fumarate | Other | EDSS | 2.68 | 3.217 | 2.081 | 0.258 | 0.241 |
| Dimethyl Fumarate | Other | Disease duration | 11.398 | 12.682 | 8.627 | 0.149 | 0.424 |
| Dimethyl Fumarate | Other | BMI | 23.498 | 23.051 | 4.553 | 0.098 | 0.627 |
| Dimethyl Fumarate | Other | No comorbidities | 80.7 | 79.7 | 39.7 | 0.025 | 0.898 |
| Dimethyl Fumarate | Other | Comorbidities | 19.3 | 20.3 | 39.7 | 0.025 | 0.898 |
| Dimethyl Fumarate | Other | No Methylprednisolone | 98 | 95.2 | 15.5 | 0.179 | 0.353 |
| Dimethyl Fumarate | Other | Methylprednisolone | 2 | 4.8 | 15.5 | 0.179 | 0.353 |
| Fingolimod | Natalizumab | Age | 41.461 | 43.729 | 12.059 | 0.188 | 0.213 |
| Fingolimod | Natalizumab | Females | 74.6 | 74.4 | 45.6 | 0.006 | 0.973 |
| Fingolimod | Natalizumab | Males | 25.4 | 25.6 | 45.6 | 0.006 | 0.973 |
| Fingolimod | Natalizumab | RR MS | 97.4 | 88.7 | 30.3 | 0.288 | 0.106 |
| Fingolimod | Natalizumab | Progressive MS | 2.6 | 11.3 | 30.3 | 0.288 | 0.106 |
| Fingolimod | Natalizumab | EDSS | 2.486 | 2.609 | 2.081 | 0.059 | 0.683 |
| Fingolimod | Natalizumab | Disease duration | 10.252 | 11.746 | 8.627 | 0.173 | 0.253 |
| Fingolimod | Natalizumab | BMI | 23.474 | 23.659 | 4.553 | 0.041 | 0.795 |
| Fingolimod | Natalizumab | No comorbidities | 81.1 | 79.1 | 39.7 | 0.05 | 0.771 |
| Fingolimod | Natalizumab | Comorbidities | 18.9 | 20.9 | 39.7 | 0.05 | 0.771 |
| Fingolimod | Natalizumab | No Methylprednisolone | 98.7 | 97 | 15.5 | 0.109 | 0.446 |
| Fingolimod | Natalizumab | Methylprednisolone | 1.3 | 3 | 15.5 | 0.109 | 0.446 |
| Fingolimod | AntiCD20 | Age | 41.461 | 42.228 | 12.059 | 0.064 | 0.671 |
| Fingolimod | AntiCD20 | Females | 74.6 | 68.6 | 45.6 | 0.133 | 0.438 |
| Fingolimod | AntiCD20 | Males | 25.4 | 31.4 | 45.6 | 0.133 | 0.438 |
| Fingolimod | AntiCD20 | RR MS | 97.4 | 83.5 | 30.3 | 0.46 | 0.027 |
| Fingolimod | AntiCD20 | Progressive MS | 2.6 | 16.5 | 30.3 | 0.46 | 0.027 |
| Fingolimod | AntiCD20 | EDSS | 2.486 | 2.716 | 2.081 | 0.111 | 0.464 |
| Fingolimod | AntiCD20 | Disease duration | 10.252 | 10.481 | 8.627 | 0.027 | 0.858 |
| Fingolimod | AntiCD20 | BMI | 23.474 | 22.768 | 4.553 | 0.155 | 0.319 |
| Fingolimod | AntiCD20 | No comorbidities | 81.1 | 83.7 | 39.7 | 0.065 | 0.684 |
| Fingolimod | AntiCD20 | Comorbidities | 18.9 | 16.3 | 39.7 | 0.065 | 0.684 |
| Fingolimod | AntiCD20 | No Methylprednisolone | 98.7 | 98.6 | 15.5 | 0.008 | 0.95 |
| Fingolimod | AntiCD20 | Methylprednisolone | 1.3 | 1.4 | 15.5 | 0.008 | 0.95 |
| Fingolimod | Other | Age | 41.461 | 44.002 | 12.059 | 0.211 | 0.287 |
| Fingolimod | Other | Females | 74.6 | 72 | 45.6 | 0.059 | 0.777 |
| Fingolimod | Other | Males | 25.4 | 28 | 45.6 | 0.059 | 0.777 |
| Fingolimod | Other | RR MS | 97.4 | 75.3 | 30.3 | 0.73 | 0.005 |
| Fingolimod | Other | Progressive MS | 2.6 | 24.7 | 30.3 | 0.73 | 0.005 |
| Fingolimod | Other | EDSS | 2.486 | 3.217 | 2.081 | 0.351 | 0.086 |
| Fingolimod | Other | Disease duration | 10.252 | 12.682 | 8.627 | 0.282 | 0.149 |

| | | | | | | | |
|-------------|----------|-----------------------|--------|--------|--------|-------|-------|
| Fingolimod | Other | BMI | 23.474 | 23.051 | 4.553 | 0.093 | 0.666 |
| Fingolimod | Other | No comorbidities | 81.1 | 79.7 | 39.7 | 0.036 | 0.865 |
| Fingolimod | Other | Comorbidities | 18.9 | 20.3 | 39.7 | 0.036 | 0.865 |
| Fingolimod | Other | No Methylprednisolone | 98.7 | 95.2 | 15.5 | 0.224 | 0.279 |
| Fingolimod | Other | Methylprednisolone | 1.3 | 4.8 | 15.5 | 0.224 | 0.279 |
| Natalizumab | AntiCD20 | Age | 43.729 | 42.228 | 12.059 | 0.124 | 0.396 |
| Natalizumab | AntiCD20 | Females | 74.4 | 68.6 | 45.6 | 0.127 | 0.438 |
| Natalizumab | AntiCD20 | Males | 25.6 | 31.4 | 45.6 | 0.127 | 0.438 |
| Natalizumab | AntiCD20 | RR MS | 88.7 | 83.5 | 30.3 | 0.172 | 0.284 |
| Natalizumab | AntiCD20 | Progressive MS | 11.3 | 16.5 | 30.3 | 0.172 | 0.284 |
| Natalizumab | AntiCD20 | EDSS | 2.609 | 2.716 | 2.081 | 0.052 | 0.716 |
| Natalizumab | AntiCD20 | Disease duration | 11.746 | 10.481 | 8.627 | 0.147 | 0.317 |
| Natalizumab | AntiCD20 | BMI | 23.659 | 22.768 | 4.553 | 0.196 | 0.133 |
| Natalizumab | AntiCD20 | No comorbidities | 79.1 | 83.7 | 39.7 | 0.116 | 0.421 |
| Natalizumab | AntiCD20 | Comorbidities | 20.9 | 16.3 | 39.7 | 0.116 | 0.421 |
| Natalizumab | AntiCD20 | No Methylprednisolone | 97 | 98.6 | 15.5 | 0.101 | 0.498 |
| Natalizumab | AntiCD20 | Methylprednisolone | 3 | 1.4 | 15.5 | 0.101 | 0.498 |
| Natalizumab | Other | Age | 43.729 | 44.002 | 12.059 | 0.023 | 0.907 |
| Natalizumab | Other | Females | 74.4 | 72 | 45.6 | 0.053 | 0.792 |
| Natalizumab | Other | Males | 25.6 | 28 | 45.6 | 0.053 | 0.792 |
| Natalizumab | Other | RR MS | 88.7 | 75.3 | 30.3 | 0.442 | 0.052 |
| Natalizumab | Other | Progressive MS | 11.3 | 24.7 | 30.3 | 0.442 | 0.052 |
| Natalizumab | Other | EDSS | 2.609 | 3.217 | 2.081 | 0.292 | 0.138 |
| Natalizumab | Other | Disease duration | 11.746 | 12.682 | 8.627 | 0.109 | 0.574 |
| Natalizumab | Other | BMI | 23.659 | 23.051 | 4.553 | 0.133 | 0.499 |
| Natalizumab | Other | No comorbidities | 79.1 | 79.7 | 39.7 | 0.015 | 0.942 |
| Natalizumab | Other | Comorbidities | 20.9 | 20.3 | 39.7 | 0.015 | 0.942 |
| Natalizumab | Other | No Methylprednisolone | 97 | 95.2 | 15.5 | 0.115 | 0.616 |
| Natalizumab | Other | Methylprednisolone | 3 | 4.8 | 15.5 | 0.115 | 0.616 |
| AntiCD20 | Other | Age | 42.228 | 44.002 | 12.059 | 0.147 | 0.449 |
| AntiCD20 | Other | Females | 68.6 | 72 | 45.6 | 0.074 | 0.728 |
| AntiCD20 | Other | Males | 31.4 | 28 | 45.6 | 0.074 | 0.728 |
| AntiCD20 | Other | RR MS | 83.5 | 75.3 | 30.3 | 0.27 | 0.257 |
| AntiCD20 | Other | Progressive MS | 16.5 | 24.7 | 30.3 | 0.27 | 0.257 |
| AntiCD20 | Other | EDSS | 2.716 | 3.217 | 2.081 | 0.24 | 0.234 |
| AntiCD20 | Other | Disease duration | 10.481 | 12.682 | 8.627 | 0.255 | 0.182 |
| AntiCD20 | Other | BMI | 22.768 | 23.051 | 4.553 | 0.062 | 0.752 |
| AntiCD20 | Other | No comorbidities | 83.7 | 79.7 | 39.7 | 0.101 | 0.583 |
| AntiCD20 | Other | Comorbidities | 16.3 | 20.3 | 39.7 | 0.101 | 0.583 |
| AntiCD20 | Other | No Methylprednisolone | 98.6 | 95.2 | 15.5 | 0.216 | 0.317 |
| AntiCD20 | Other | Methylprednisolone | 1.4 | 4.8 | 15.5 | 0.216 | 0.317 |

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