Neurology Medications

Tysabri

https://www.tysabrihcp.com/?cid=ppc-ggl-branded-na-14001-branded

1. Indications- for Relapsing MS only
2. Can be first line therapy, but usually not
3. JCV testing Q6 months for PML risk
4. Patients need to transition to another MS therapy after 2 years if (CV positive S. Dosing and 4.Fre
5. quency: 300mg IV Q28 days (no earlier)
6. Given in 100m1 NS bag and given over 1 hour, 1 hr. monitoring afterwards
7. No pre-meds needed
8. Use with NON-FILTERED tubing
9. 2nd dose can be a common time to experience reactions

Ocrevus

https://www.ocrevus.com/

1. Indications- Relapsing MS and Primary Progressive MS
2. Dosing and Frequency: 300mg IV on day 1 and 14, then 600mg Q6 months
3. Vial sizes: 300mg in 10ml
4. Premeds needed (Tylenol 500-1000mg, Benadryl 25-50mg IV/PO, Solumedrol 100mg in 100m1 NS, but follow physician order)
5. FILTERED tubing
6. Reconstitute in 250mL for 300mg doses and 500mL for 600mg doses
7. Admin over 2.5-3 hrs. for 300mg doses, and 3.5-4 hrs. for 600mg doses
8. Bring Ocrevus to room temperature prior to reconstituting, PROTECT FROM LIGHT until reconsti tuted

Rituxan

http://www.rituxan.com/hem/patient/what-is-rituxan

1. OFF LABEL Indication: MS
   Indications: RA patients that have MS also
2. Dosing and Frequency:
   a. RA: 1000mg on Day 0 and 14 Q6 months
   b. MS: 1000mg on Day 1 and 500-1000mg Q6 months (based off CD19 count)
3. Vial sizes:
   a. 500mg/50ml
4. Mixing:
   a. Rituxan goes in 250 ml 0.9% NS hag
   b. Remove IVF from bag according to dose you're using (500mg=50MI, 1000mg=100M1) PRIOR to adding medication
5. Rate:
   a. RA: Very first infusion for Rituxan is 4:15, second and subsequent is 3:15; set pump using chart provided
6. Premedication required: Tylenol 500mg; Benadryl 25 mg IVP; Solumedrol 125mg IVP
7. Must wait 30 minutes after administration of solumedrol before starting Rituxan
8. Nonfiltered tubing (medication does not require reconstitution) MEDICATION MUST GO ON A PUMP OR FLOW METER

Lemtrada

https://www.lemtradahcp.conn/hcn-support?s mcid=ps-LP-google-BRgeneral-lemtrada-BRSupportPractice

1. Indications-Relapsing MS
2. Dosing and Frequency: 1" round: 12mg/day x5 days. 2^d Round: 12mg/day x3 days 12 months from the first round.
3. Vial size: 12ing/1.2m1
4. Given in 100mL bag over 4 hrs. each day, each course
5. Pre-Meds required: Tylenol 1000mg P0, Benadryl 50mg IV, Solumedrol 1000mg over 30-60min (per MD order), Zyrtec/Hydroxyzine, Zantac, Anti-viral (pt. MUST take prior to infusion-will have prescription).
6. Non-filtered tubing
7. PROTECT FROM LIGHT, Genzyme provided bags to place over infusion bag while infusing

IVIG

https://www.ncbi.nlm.nih.govipmciarticles/PMC1809480/

1. Indications: CIDP, PHI (Primary Humoral Insufficiency), Lambert-Eaton, ITP (Immune Thrombocytopenic, Purpura), Myasthenia Gravis, Guillain Barre (acute phase).
2. Dosing and Frequency:

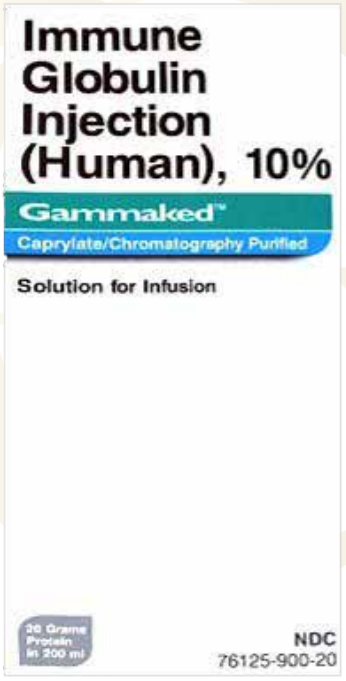
a. Loading: 2gm/kg over 3-5 days

b. Maintenance: 1gm/kg over 1-2 days Q3-8 weeks (must have specific frequency on order, no ranges)

3. Vial size: 5% solutions: 10gm/200mL

10% solutions: 10gm/100mL

4. Reconstituting Instructions for Carmine NF ONLY: 6gm/12gm vials can be reconstituted with 100.200mL NS/D5
5. No premeds needed, but Benadryl and Tylenol are standard with loading doses
6. MAY ONLY USE D5 WITH WIG, EXCEPT FOR CARIMUNE NF
7. Non-filtered tubing
8. Needs to be given on a pump, pump rate is based off weight and follows a formula that increases the rate incrementally (every 30min)
9. Time of infusion depends on the patient's weight and how much IVIG is given. 4 hours is standard for loading, 6-8 standard for maintenance doses (this is also based on pt. tolerability).



Solumedrol

1. Indications- Anti-inflammatory, Status Asthmaticus, Acute Exacerbation of Multiple Sclerosis, Severe Lupus Nephritis
2. Dose: 40mg, 125mg, 1 gram
3. Vial sizes: 40mg/1ml, 125mg/2m1, 1000mg(1g)/16m1
4. May be given direct IV, IVP or diluted in NS
5. 40mg and 125 vials is an act-o- vial, pushing down on the stopper to reconstitute. 1gram vial is mixed with 16ml of STERILE WATER. Takes 5-10 min to reconstitute 1gm doses.
6. 1 gram when ordered is given in 100 ml bag of NS over 30-60min x 3 days (maybe 5 days according to MD).
7. May be given as part of a "Meyers Cocktail"/Migraine infusion. 125mg.
8. Given as a premedication for Lemtrada infusion (1000mg in 100mL over 30.60min, per MD order).

Fasenra

1. Indications- Add on maintenance treatment of patients with severe asthma aged 12 and older with an eosinophilic phenotype
2. Fasenra is an interleukin-5 receptor alpha-directed cytolytic monoclonal antibody (IgGl, Kappa)
3. Dose: 30mg
4. Vial size: 30mg/1ml
5. Comes in pre-filled syringe
6. Injection sites include upper arm, outer thigh, or abdomen. Rotate injection sites with each dose
7. Given at week 0, week 4, week 8, then every 8 weeks thereafter
8. Bring to room temperature prior to administration
9. Monitor 30 minutes for allergic reaction or sensitivity after every injection
10. Use with precaution in patients who have a known parasitic (helminth) infection; those taking oral or inhaled corticosteroids, vitamins or herbal supplements; pregnant or planning to become pregnant; breastfeeding

Nucala

1. Indications- Add on maintenance treatment of patients with severe asthma with an eosinophilic phenotype
   Eosinophilic Granulomatosis with polyangiitis (EGPA)
2. Dose: Asthma - 100mg q 4 weeks
   Pulmonary Eosinophilia - 300mg q 4 weeks
3. Vial size: 100mg/1ml
4. Reconstitute each vial with 1.2ml of sterile water
5. Injection sites include upper arm, outer thigh, or abdomen. Administration can be 1 to 3 injections in a single visit based on dose (maximum of 1ml per injection site). If multiple sites are needed, then space at least 2 in. between injection sites.
6. Monitor 30 minutes for allergic reaction or sensitivity after every injection
7. Herpes Zoster infections have occurred in patients receiving Nucala - vaccination should be considered.
8. Pre-existing helminth infections should be treated prior to initiation of therapy and any occurrence of infection during Nucala treatment should result in discontinuation of Nucala until parasitic infection resolves

DRUG NAME	DIAGNOSIS	DOSAGE	RUN TIME	PREMEDS	LOADING DOSE & FREQUENCY	LABS	SPECIAL CONSIDERATIONS
Gilenya	RRMS (Relapsing-Remitting MS)	0.5mg PO	Given orally.	None/Per MD	First dose in clinic with observation. Subsequent doses: at home daily. **If a patient ever misses a dose, they must return to clinic to repeat observation to re-initiate dosing.	CBC, CMP per MD discretion	- Contraindicated for patients who in the last 6 months experienced MI, unstable angina, stroke, TUN, class111/IV CHF. - Observe for 6 hours post administration, obtaining BP and HR readings Q 1 hour for the first 4 hours, then Q 30 minutes for the last 2 hours. - Encourage patients to get up and move around throughout infusion to help with HR. - EKG to be obtained pre-administration and post-observation. If post-obs EKG shows new onset 2nd degree or higher AV block, OR. - If post-obs HR is <45 bpm, slower than 10bmp from pre-dose reading, or at the lowest value since administration, further observation is needed, including continuous EKG monitoring until symptoms are resolved

DRUG NAME	DIAGNOSIS	DOSAGE	RUN TIME	PREMEDS	LOADING DOSE & FREQUENCY	LABS	SPECIAL CONSIDERATIONS
IVIG	- Guillain Barre Syndrome (GBS) multifocal motor neuropathy (MMN) -chronic inflammatory demyelinating polyneuropathy (CIDP) -Dermatomyositis and inflammatory -myopathies (DM) -Myasthenia gravis (MG) -Lambert-Eaton syndrome (LEMS) -stiff person syndrome (SPS)	Loading: 2mg/kg Maintenance: 1gm/kg Vials: 1gm 5gm 10gm 20gm OR 6gm 12gm (Vial sizes can vary by brand) Spike glass bottle directly with tubing and vent by opening cap on drip chamber.	Loading: Ticket at 3-4 hours/day based on calculation: start at 1 gm/kg/min then increase by 1 gm/kg/min Q 30min Max rate is 8gm/kg/min (see titration worksheet) Maintenance: 6-7 hours/ day can be split between two days if dose is over 150gm or if pt cannot tolerate 1 day infusion. Start Low, Go Slow. Longer infusion times required for larger doses.	-Benadryl IV/PO -Solumedrol IVP (except for MMN patients, steroids can worsen MMN.) -Tylenol PRN per MD preference.	Loading: Gm/kg over 3-5 days Maintenance: 1gm/kg Q3-8 weeks (usually 4 weeks, MD must specify frequency, cannot write for a range).	-TB and Hep panel initially and yearly -CBC, CMP, CRP ESR Q 3 months per MD discretion	-No monitoring post infusion --To the administrator with D5, may flash with NS on some brands. Refer to manufacturer recommendations. Carimune NF, is compatible with NS Sterile Water and D5w EMG required for initious initiation of drug for CIPD Each diagnosis will require different diagnostic test Must use non filter during cannot use filtered

DRUG NAME	DIAGNOSIS	DOSAGE	RUN TIME	PREMEDS	LOADING DOSE & FREQUENCY	LABS	SPECIAL CONSIDERATIONS
Lentrada *REMS Program	RRMS	12mg IV in a 100ml NS bag Vial: 12mg/1.2ml	4 hours or more 25mLihr Protect from light during infusion *Non-Filtered	Solumedrol 1000mg IV (in either 100mL or 250mL bag of 0.9% Normal Saline according to MD order) over 30-60min for first 3 days of EACH treatment course. -Solumedrol 125mg 1VP Day 4 and 5 of 1" course per MD preference. - Antihistmine -Ranitidine -Antiviral -Tylenol -Benadryl	1st Course: - Daily for 5 consecutive days 2nd Course: - 366 days from Day 0 - Daily for 3 consec utive days	Pre Labs for EachCourse: CM P, FreeT4 HepBsAg HepBcAb HepCcAb TB HPV(female) HIV VZV Initially then g month for 60 months after com-pletion of 1st course: CBC, CD4, Creatinine, Urinalysis, TSH	- Protect from light during infusion. Bag covers can be ordered from McKesson or drug rep. - Monitor for 2 hours post infusion. - Baseline and yearly skin exams to monitor for melanoma d/t increased risk on Lemtrada. Need documentation prior to infusion. - Contraindicated for patients with HIV. - Appropriate for patients with inadequate response to 2 or more drugs indicated for MS. - Educate patients to not eat anything raw, especially lettuce, d/t listeria concerns. - Hydroxyzine often has better outcomes than Benadryl. - Flushing with 500mL NS post-infusion has shown better outcomes than 100mL. - Elevated BP can be common side effect

DRUG NAME	DIAGNOSIS	DOSAGE	RUN TIME	PREMEDS	LOADING DOSE & FREQUENCY	LABS	SPECIAL CONSIDERATIONS
Ocrevus	RRMS PPMS (Primary-Progressive MS) SPMS (Secondary Progressive MS-NOT FDA APPROVED)	1St Dose: 300mg IV in a 250mL NS bag (remove vial volume) at Day 0 and Day 14 2nd Dose/ Maintenance: One treatment of 600mg IV in a SOOmL NS bag (remove volume of two vials) Vial: 300mg/10 mL single-dose vial	1st Dose (Days 1 & 2) 2 1/2 hours titrated: Rate/Volume: 30m L/1.5mL 60m L/30mL 90m L/45mL 120mL/60mL 150mL/75mL 180mL/25mL 2nd Dose (Q 6 mo after first dose) 3 1/2 hours titrated: Rate/Volume: 40mL/20mL 80mL/40mL 120mL/60mL 160mL/80mL 200mL/300mL *Filtered	-Acetaminophen PO 1000mg - Benadryl PO 50mg PO/IV - Solumedrol IV 100mg in 100mL bagof 0.9% Normal Saline over 30 minutes OR - Solumedrol IVP 100mg over 3 minutes, then wait 30 minutes.	1st Doses: Day 0 and Day 14 2nd Dose/Maintenance: 6 months from Day 0, then Q 6 months thereafter.	- CRC, CMP, JCV (within one month of starting Ocrevus) initially and Q 6 months thereafter. -HepBsAg -HepBsAb -HepBcAb HepBsAg annually - HIV initially per MD discretion - Vitamin D annually per MD preference	- Monitor for 1 hour post infusion. - MRI required one week prior to starting Ocrevus, then 3 months after 1st treatment per MD discretion - For female patients: breast exam and GYN exam (ruling out I-IPV) required prior to initiating therapy. - 25 foot walk to be completed during office visit or 1" day of infusion. - OCT (Optical Coherence Tomography) imaging to be completed within first 3 months of starting Ocrevus per MD discretion - Itching, rash, and general malaise are common side effects of Ocrevus. If patients experience these encourage them to push through with MD discretion and symptoms should resolve by end of infusion.

DRUG NAME	DIAGNOSIS	DOSAGE	RUN TIME	PREMEDS	LOADING DOSE & FREQUENCY	LABS	SPECIAL CONSIDERATIONS
Rituxan	RRMS (NOT FDA APPROVED but can often be obtained as free drug) NMO (Neuromyelitis Optica- NOT FDA APPROVED) MG (Myasthenia Gravis) (NOT FDA APPROVED)	**MS & NMO:** 1000mg initially, OR 1000mg on Day 0 and Day 14 initially, (Per MD discretion) THEN 500-1000mg Q6 months (dependent on CD19 count). Authorize for 1000mg Q6 months **MG:** 375mg/m^2 In a 250mL NS bag (see Rituxan Mixing Table for MG).	**1st Dose:** 4 hours 15 min titrated: 2 Rate/Volume: 12mL/6ml 25mL/13mL 38mL/19mL 50mL/25mL 63mL/32mL F75ml/38mL 88mL/44mL 100mL/75ml **2nd Dose:** 3 hours 15 min titrated: Rate/Volume: 25mL/13mL 50mL/25mL 75mL/38mL 100ml/175mL * Non-filtered	-Tylenol 500mg -Benadryl IVP 25mg -Solumedrol IVP 125mg OR Per MD	**MS:** Day 1 100mg OR Day 0 and Day 14 (Per MD direction.) 100mg Then Q6 mo: 500-100mg **NMO:** Day 1 1000mg Q6 months: 500mg **MG:** weekly for 4 weeks, repeat Q 6 months	- CBC, CMP, CRP, ESR initially then Q 3 months. Pre-Rituxan: HepBcAb HepBsAg HepBsAb HepCcAb IgG, IgA, IgM TB EKG {per md disrection) CBC, AST/ALT, icv, Cpa, D8, CD19 Natural Killer Cells	- Wait 30 minutes after administration of Solumedrol IVP before initiating infusion. -30 min monitoring post-infusion per physician discretion. - Monotherapy for MS/NMO/MG

DRUG NAME	DIAGNOSIS	DOSAGE	RUN TIME	PREMEDS	LOADING DOSE & FREQUENCY	LABS	SPECIAL CONSIDERATIONS
		Vial: 500mg/50					
Tysabri *REMS Program (TOUCH)	RRMS Crohn's	300mg IV In a 100mL bag (can place medication directly into bag, no need to draw out saline) Vial: 300mg/15ml	1 hour Continuous *Non-filtered	None per MD	No Loading Dose. Q 28 days	- JCV initially then Q 6 months. - CBC, AST, ALT initially then Q 6 months -Vitamin D annually per MD preference.	- Observe for one hour post-infusion. - Contraindicated for patients with history of PML - For Crohn's, DO NOT use with MTX or other immuno-suppressants. - Washout period of 6 weeks when transitioning from Tysabri to other MS drugs such as Gilenya, Aubagio, Tecfidera, Ocrevus.
Redicava	ALS Amyotrophic Lateral Sclerosis (Payers insist on a diagnosis of 2 years or less, but it is medically appropriate in any ALS patient)	60mg IV. Comes in a 30mg/100mL premixed bag.	1 hour total (for both bags) continuously *Non-filtered tubing	None	Loading Dose: 60mg/day x14 consecutive days, then 14 drug-free days Maintenance: 60mg/day x10 days (out of 14 total days, non-consecutive) followed by 14 drug-free days	None required per PI, physician preference only	- No monitoring post-infusion. - Contraindicated in patients with allergies to Sulfites (like in wine, NOT sulfa). - If patient is an asthmatic, please consult with MD. - Patient may need port - Check Oxygen sensor on bag once overwrap removed-if purple/blue, DO NOT INFUSE.

DRUG NAME	DIAGNOSIS	DOSAGE	RUN TIME	PREMEDS	LOADING DOSE & FREQUENCY	LABS	SPECIAL CONSIDERATIONS
		Vial: 500mg/50					
							- Protect from light during storage, maintain in overwrap package until ready to infuse. - Does not need refrigeration-store at room temp - Infuse within 24hrs of opening overwrap package.
Soliris *REMS Program (One Source / Alexion)	Anti-ACH r+ Myasthenia Gravis NOT FDA APPROVED for MUSK MG (Muscle specific kinase)	900mg x4 weeks 1200mg week 5, then Q 2 weeks thereafter Vials: 300mg/30m L Comes already constituted. Place in an empty sterile bag, then add additional diluent volume of 30ml. NS/D5/R/SW per vial.	Infuse over 35 minutes, regardless of dosage. 900mg — program pump to infuse 180ml at 308ml/hr 1200mg — program pump to infuse 240m1 at 411ml/hr *Non-filtered	None – Per MD discretion	900mg weekly for the first four weeks, followed by 1200mg for the fifth dose 1 week later, then 1200mg every 2 weeks thereafter	None – Per MD discretion	- Monitor for 1 hour post infusion. - Meningitis vaccine required 2 weeks prior to start of therapy. - Patients should have failed 2 immuno-suppressive drugs with chronic s/s OR Failed 1 immunosuppressive drug and on chronic IVIG/PLEX - May be held at room temp for up to 3 days. - Protect from light during storage, but not required during infusion. - Once mixed infuse within TWO hours, and infusion should last no longer than TWO hours (if slowed for patient reaction, etc).

DRUG NAME	DIAGNOSIS	DOSAGE	RUN TIME	PREMEDS	LOADING DOSE & FREQUENCY	LABS	SPECIAL CONSIDERATIONS
		(900mg should have 180mi total volume, 1200mg should have 240m1 total volume.)					- Requires enrollment form. - REMS Program (include One Source /Alexion - Requires 4 week washout from IVIG /PLEX.

**MRI of brain required before initiation of each drug for MS.

Commonly failed drugs: 1

Oral
- **Gilenya** (Fingolimod)
- **Aubagio** (Teriflunomide)
- **Tecfidera** (DMF or Dimethyl)

Injectable
- **Rebif, Avonex** (IM) (Interferon beta-la) Injectable
- **Betaseron, Extavia** (Interferon beta-lb)
- **Copaxone** (Glatiramer Acetate, Glatopa)
- **Plegridy** (Peginterferon beta-la)

Intravenous - Novantrone (mitoxantronej