Resources for the Primary Care Provider

Please print these out for reference

Resources for providers

American Academy of Neurology

www.aan.com

Provides education and resources, such as guidelines for clinical care for diagnosis and management of patients with multiple sclerosis to health care providers.

National Multiple Sclerosis Society

www.nmss.org

1-800-fight MS

Valuable resources for both patients and health care providers.

Consider providing info about NMSS to your patients.

See supplemental slides for more info.

NMSS Resources for Providers
www.nmss.org

- Publications
    - Clinical Bulletins, Symptom management, Expert opinions, Talking with patients about difficult topics…
- Professional Education for MDs, RNs, MAs
    - Conferences, CME programs and self-study offerings
- Resources for Clinicians
    - Clinical Tool kits for injection anxiety, stress management
    - MS-related disability claims
    - Insurance appeal letters
- NMSS Resource Guide for Clinicians (pdf)
- Consult with MS specialist per e-mail

Interferon-beta 1

IFN beta 1a	im	once weekly		Avonex®
IFN beta 1a	sc	three x weekly		Rebif®
IFN beta 1b	sc	every other day		Betaseron,® Extavia®

MOA: Immune-modulator

AE: Injection site reactions

                              Flu-like symptoms

                              Leukopenia

                              Liver toxicity

                              Depression

                              Risk of antibodies, significance controversial

Safety monitoring: CBC, hepatic panel @ 1, 3, 6months , then q6m

Glatiramer Acetate

sc   once daily   Copaxone®

MOA: Immune-modulator

AE: Injection site reactions

                        Lipodystrophy

                        Systemic injection reaction (rare, harmless)

Safety monitoring: na

Fingolimod

oral   once daily   Gilenya®

Phase III:	Superiority against IFN beta 1a im
MOA:	Immune-modulator & immune-suppressor[1]
AE:	Leukopenia – 20-30% down from baseline
	Infections – 2 fatal herpes infections on higher dose in trial
	? Cancer
	Liver toxicity – 9% 3x ULN
	Macula edema – 0.4%
	Airway obstruction
	Fetal risk
Prior start:	CBC, LFT, VZV titer, eye exam per FDA; poss. EKG, PFT
Safety monitoring:	First dose monitoring (bradycardia, AV block)
	Repeat eye exam per FDA; CBC, LFT

[1] Sphingosine-1-phosphate agonist

Mitoxantrone

	iv every 3 months	Novantrone®

MOA: Immune-suppressor (antracyclide)

AE: Nausea, vomiting, fatigue
Infection, leukopenia, liver toxicity
Amenorrhea, infertility

Black box warning: **Cardiotoxicity**
Leukemia

Safety monitoring: Blood work before/+2 weeks each infusion

EKG at baseline

ECHO before each dose, annually post discontinuation

CBC post discontinuation

Life-time maximal dose 140mg/m2 for cardiotoxicity

Clinical usage declined for higher than expected leukemia/cardiotoxicity rates

Natalizumab

iv   once monthly   Tysabri®

MOA: Monoclonal antibody (anti-VLA-4)

AE:
Black box warning: **Progressive multifocal leukencephalopathy (PML)**
                        Allergic symptoms
                        Liver toxicity
                        ? Opportunistic infections
                        Antibodies: allergic reaction, AE, treatment failure
                            ▶ avoid stopping after 1-3 infusions

Safety monitoring: FDA-mandated distribution program TOUCH©
                        Baseline MRI prior start
                        Close clinical & MRI monitoring
                        Blood work

First-line treatments

- Interferons
  - Avonex
  - Betaseron
  - Rebif
- Copaxone

Second-line treatments

- Tysabri
- Novantrone

Have changed the face of MS

Don't work for everyone

Optimal drug for the individual?

First-line treatments

- **Interferons**
  - Avonex
  - Betaseron
  - Rebif
- **Copaxone**

Very safe

Long-term safety >15 years

Effective in a lot of MS patients

Needles, self-injections

Tolerability
- Injection site reactions
- FLS and blood work for interferons

Compliance

Second-line treatments

- Tysabri
- Novantrone

Often work when other treatments failed or cannot be tolerated

No self-injection required

Less frequent dosing

Limited safety data

Safety risks:

Tysabri: PML, opportunistic infections

Novantrone: fertility, heart, leukemia

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