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MS Treatment and Covid-19

By Emmanuelle Waubant, MD, PhD, UCSF

The year 2020 has been unlike anything we have ever known before due to the pandemic and the many resulting disruptions. For patients with MS, an additional challenge during this period has been to avoid disruption in their medical care, while dealing with the stress and sometimes deconditioning related to the shelter-in-place. While in March this year it was unclear how COVID-19 infection may affect MS, the past three months have witnessed amazing progress in the understanding of how people with MS fare during the pandemic. This progress would not have been possible without major international data sharing and collaboration.

Several registries (i.e. databases collecting de-identified information on how patients with MS who developed COVID-19 infection fare on various MS treatments) have taught us critical information that can now be used for MS care management.

First, it appears that patients with MS are not at a higher risk to develop COVID-19 infection than the general population, i.e. patients with MS have a normal immune response except for the immune attack targeting the brain and the spinal cord.

Second, at the beginning of the pandemic various MS societies around the world made treatment recommendations based on possible concerns related to MS drug mechanisms of action; early on, these recommendations could not be based on real data as none were available. Now, precise recommendations are based on information coming from various registries around the world. In fact, no increase in the risk of COVID-19 infection has been seen in patients receiving most approved MS therapies, and even a lower risk may occur while on interferon treatment. For some therapies less widely used such as Lemtrada and Mavenclad, the data remain too scarce to make a formal conclusion.

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Staying Well with MS While We Are "Staying at Home"

By Vijayshree Yadav, MD, MCR, OHSU and
Lilyana Amezcua, MD, MS, USC

Keeping good nutrition when home bound. Emerging data suggests an important role of diet and nutrition in staying well in MS. The significant role that diet plays in managing vascular comorbidities such as obesity, hypertension, diabetes and heart disease is well known. Vascular comorbidities in MS likely contribute towards increased disease activity and progression.

While staying at home during the social distancing norms currently in the COVID-19 era may give more opportunities to spend time on self-care, becoming more sedentary is not without health risks. With decreased body energy demands due to lesser mobility/activity, one risks unwanted weight gain if dietary intake is not carefully monitored. This undesirable weight gain becomes a substrate for increased blood pressure, worse blood lipids and sugar that can adversely affect MS in longer and shorter term. Symptoms such as fatigue can get worse with unwanted weight gain.

While there are no specific dietary recommendations for people with MS yet, dietary approaches including US Dietary Guidelines, Swank diet, McDougall diet and Mediterranean diet can be reasonable ways to achieve good health in MS. Keeping optimal body weight with healthy nutrient and antioxidant rich diet during COVID-19 era may be one of the key factors to feeling well with MS and possibly lowering the complication risk with COVID-19.

Importance of exercise while staying at home. Exercise is known to have many benefits in

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Message from Nancy Davis President and Founder



Our new decade of 2020 has tested each one of us in ways we could have never imagined. Covid-19 has not only disrupted any sense of normalcy, it has created so much isolation and fear, especially among those most vulnerable.

This pandemic will not stop us from winning our Race to Erase MS! Now more than ever we are focused on funding important research and are committed in every way to find a cure for MS.

During this time of safer at home, we have been connecting with our Center Without Walls doctors on Instagram and Facebook Live, discussing the latest research and impacts of Covid-19. All of our episodes are saved in our Facebook archives or Instagram stories if you have missed an episode. You can also view on my talk show at PeaceandLoveshow.com. Make sure to follow us on our social platforms for an update on the next discussion with one of our Center Without Walls doctors or special guests.

Our Young Investigator (YI) grants are at the heart of the work we do, and we are proud to be funding five YI awards for the 2020-2021 grant year as well as two Innovation awards. Know that we are pushing forward in determination to discover cutting-edge treatments that may lead to a cure, even during this pandemic.

It is important that everyone in our MS communities and society as a whole stay safe and take care of your health the best you can under these life changing circumstances. Our hearts go out to all of those that may have lost a loved one to Covid-19 or to anyone they loved unrelated to the virus during this time.

We are closely monitoring guidelines for events in California as the safety and well being of all is our utmost priority. We are planning a drive-in event on September 4th, as well as a virtual event so save the date! Our MS Forum webinar will take place the next day on September 5th with a virtual Expo.

With the continued support of our most generous donors, we will continue to work together as a team to win our Race to Erase MS! Sending good wishes for health!

Peace and Love,

Tips to Manage Stress During the Pandemic

Adam Kaplin, MD, PhD, Johns Hopkins

Assistance: Knowing when and how to ask for help is far more important than knowing how to endure anguish. Asking for help gives others the chance to feel good about helping. All of us are smarter than any one of us alone. Anxiety/Depression are not protected by pandemics and in fact are more likely to be exacerbated, so be mindful of the need to check in with your team of healthcare providers and be proactive. **Breaks. Take Breaks.** **Breath:** Notice how you feel. Be grateful for the good things, and stay grounded in the present when problem solving. **Connections:** Communicate with your loved ones. What isn't said is still communicated, but you don't know what it is the other person is hearing. **Don't do things that will make things worse:** alcohol, drugs, taking your frustration out on others, bringing on alarmist news. **Exercise, Eat and Sleep:** Routine is the way you keep yourself steady in unfamiliar terrain.

Dr. Kaplin is the inventor and co-developer of www.mood247.com, an automated Web and SMS coordinated mood tracker and mobile electronic health diary.

**RACE
ERASE
MS**

**MS FORUM
WEBINAR**

**SATURDAY
SEPT 5, 2020
10:00 - 11:30 AM PST**

**COVID-19
AND
MULTIPLE
SCLEROSIS**

JOIN US for a webinar discussion with the most prominent and leading multiple sclerosis (MS) research scientists from our Center Without Walls program. Our forum is a unique opportunity to hear about the latest advances in MS research and the most up to date information on Covid-19 and multiple sclerosis.

There are 3 ways you can join our MS Forum live stream:

1. REGISTER for our webinar at erasems.org.

2. VIEW on our Facebook Live page @Erasems on September 5th at 10 am PST.

3. WATCH ON DEMAND at anytime on our Facebook Live page @Erasems in our Archives.

Submit Your Questions to Us in Advance: Please send us your MS questions in advance for our panelists to answer during the webinar. The panelists will do their best to respond to everyone's questions in the time allowed. We will not be taking live questions during the webinar. Please submit questions by September 4th at Noon PST to joanna@erasems.org.

Our panelists include: Lilyana Amezcua, M.D., USC; Etty Benveniste, PhD, UAB MS Center; Peter Calabresi, M.D., Johns Hopkins; Monica J. Carson, Ph.D., UC Riverside; Anne Cross, M.D., Washington University; Andrew D. Goodman, M.D., University of Rochester; David Hafler, M.D., Yale; Adam Kaplin, M.D., Ph.D., Johns Hopkins; Daniel S. Reich, M.D., Ph.D., NIH; Jonathan Santoro, M.D., USC; Nancy L. Sciotte, M.D., Cedars-Sinai; Rhonda Voskuhl, M.D., UCLA; Emmanuelle L. Waubant, M.D., Ph.D., UCSF; Howard Weiner, M.D., Harvard; Vijayshree Yadav, M.D., Oregon Health Sciences; Nancy Davis and Claudia Curry Hill.

Update on MS Therapies

By Margaret Burnett, MD, USC

The last 12 months have seen the FDA approval of several new medications for Multiple Sclerosis (MS). There are now 20 drugs on the market to stop the progression of MS.

Diroximel Fumarate (Vumerity) is approved for relapsing forms of MS including clinically isolated syndrome (CIS), relapsing-remitting MS (RRMS) and active secondary progressive MS (SPMS). It is metabolized to the same active ingredient as Tecfidera (dimethyl fumarate). Vumerity is a reformulation which is expected to cause fewer gastrointestinal problems and flushing than Tecfidera but otherwise has similar efficacy and side effects. It is available through Biogen and is a pill taken twice daily.

Siponimod (Mayzent from Novartis) is a new S1P receptor (S1PR) inhibitor and is similar to Fingolimod (Gilenya) but differs in that it interacts primarily with S1PR subtypes S1PR1 and S1PR5. Mayzent is provided in a titration pack and does not have to be started under observation for most patients. It is a pill taken once daily and is eliminated from the body more rapidly than Gilenya. Dosing is tailored to the patient by genetic testing. It is indicated for the treatment of CIS, RRMS, and active SPMS.

Cladribine (Mavenclad from EMD Serono) is indicated for RRMS and active SPMS (not CIS). Because of its safety profile, its use is generally recommended for patients who have had an inadequate response to, or are unable to tolerate, an alternate drug indicated for the treatment of MS. It is unique in that it is a pill taken for only 8-10 days in year one and again in year two. It affects several types of white blood cells which slowly recover in numbers. Hence it is thought to act as a reset to the immune system and no additional dosing is recommended.

Most recently approved is Ozanimod (Zeposia from Bristol Myers Squibb) which will be available from June 1, 2020. It is another once daily oral medication in the family of S1P receptor inhibitors (Fingolimod and Siponimod) and is believed to work by blocking S1PR1 and S1PR5 subtypes similarly to Siponimod. Ozanimod is approved for CIS, RRMS and active SPMS. In two phase 3 randomized double blind controlled clinical trials Ozanimod was shown to be more effective than placebo and weekly intramuscular interferon beta-1a (Avonex) in reducing annualized relapse rate. Ozanimod was also more effective in reducing new or enlarging T2 lesions and gadolinium enhancing lesions. Side effects were similar in all groups and no serious opportunistic infections were observed.

Ofatumumab (from Novartis) is a new member of the anti-B cell therapies. It is a fully humanized monoclonal antibody directed against CD20 and is expected to be approved by the FDA in June 2020. Ofatumumab is delivered by subcutaneous injection (~ 0.4 ml) monthly so it does not require hours at an infusion center. Tested in two large phase 3 randomized double blinded controlled trials, Ofatumumab was compared to an active drug, Teriflunomide (Aubagio). There was a 50 to 58% drop in the annualized relapse rate vs Teriflunomide and a remarkable 95% reduction in new gadolinium enhancing lesions. Disability progression was also significantly reduced. There was no significant difference in infections or serious adverse events between the 2 treatments.

All these medications have proven efficacy. Each has unique dosing and side effect profile and require monitoring which should be discussed with a specialized health care provider.

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In addition, the severity of COVID-19 infection may depend on what MS treatments patients receive. For example, MS therapies such as Gilenya or Tecfidera do not appear to change the risk of severe COVID-19 infection for patient who get infected. In contrast, it is possible that interferon or Copaxone may protect from developing a severe COVID-19 infection. Finally, being on treatments such as Ocrevus, rituximab or Tysabri may increase the risk of a severe infection if infected by COVID-19. Ongoing larger studies will confirm these preliminary findings. The risk factors for a severe infection in patients with MS are otherwise the same than in the general population (older age, severe cardiovascular conditions, cancer, severe disability).

For patients with MS who experience a relapse of MS, a short pulse of high dose steroids should be given only if really needed (i.e. for relapses disrupting daily activities) as it may increase the risk of a severe infection if infected by COVID-19 during the month following steroid treatment.

While there was initially a possible concern for exposure to COVID-19 during visits to infusion centers to receive intravenous MS treatment, such concerns were lifted as those facilities have adjusted their operations to prevent exposure to the virus. Also, some infusion treatments for MS should not be discontinued without bridging to another drug due to the possibility of increased risk of MS relapse.

We all hope that a vaccine against COVID-19 will become available in the next year. Future studies will have to investigate whether any treatment used for MS alters vaccine effectiveness.

(STAYING WELL continued from Page 1)

MS. For example, there is data to support that exercise is associated with greater quality of life (QOL), cognition, and help fatigue. Data to support its benefit on fatigue and QOL comes multiple systematic review and meta-analysis that find improvement on fatigue measures and quality of life. Yoga, Pilates, and other forms such as low intensity exercise have all been found to be beneficial. Exercise also likely plays a positive role in your immune system. Data support that exercise reduces inflammatory stress which could be an important mechanism in MS. Other indirect benefits are that exercise can prevent weight gain and decrease cardiovascular comorbidities which are known to be bad in MS (because they can increase the risk of progression). Such comorbidities include hypertension and diabetes. These two comorbidities are currently known to increase the risk of developing greater complications if infected with COVID-19.

Maintain your Vitamin D intake. Vitamin D (D3) in MS is an important supplement. In MS, lower Vitamin D levels are associated with higher risk of clinical and radiological breakthrough and having low vitamin D levels is also a well-known risk factor in developing MS.

Vitamin D and COVID-19: Emerging evidence supports that there is a role of vitamin D in potentially reducing risk of COVID-19 (Nutrients 2020). Previous observational studies report independent associations between low vitamin D levels and risk of developing respiratory tract infections and Vitamin D is thought to modulate the response of white blood cells, preventing them from releasing too many inflammatory cytokines. The COVID-19 virus is known to cause an excess of pro-inflammatory cytokines.

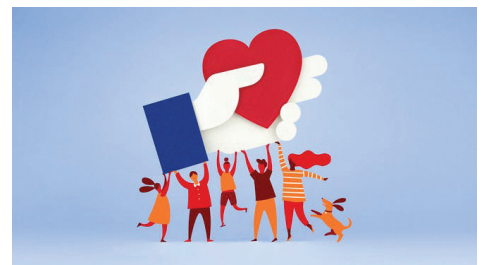
Recent published observations of vitamin D and COVID-19 found negative correlations with Vitamin D levels and mortality. However, whether this association carries forward to a protective effect against COVID-19 is unknown but one could speculate that it offers a good reason to maintain at least a healthy level of Vitamin D as recommended by your doctor in your MS care. (Aging Clinical and Experimental Research, 2020).

Join our Virtual**Crowd Fundraise and Earn Tickets to the Gala Event!**

Join today and reach out to your community to fundraise online to help find a cure for MS.

Every dollar counts towards a cure, and you can earn tickets to attend our 2021 Gala Event.

For more information and to sign up today visit:
www.erasems.org/virtual-race/

**Facebook Fundraiser**

Create a fundraiser on your Facebook page today and help us win our Race to Erase MS!

Share with friends, get donations!

Call us if you need help on how to get started, 310-440-4842 or email info@erasems.org

NAIMS Summer Update

By Dr. Nancy Sicotte, Cedars-Sinai

Meetings: The latest NAIMS meeting was held in February 2020. A full day workshop entitled “Evidence for translation of MRI to the clinic: The next generation of MRI use in the MS clinic” took place in West Palm Beach, Florida. A group of international experts in the fields of immunology, neuroimaging, informatics and statistics presented their latest updates in a highly informative and productive meeting. The proceedings of this meeting will be published in the coming months.

Also at the ACTRIMS meeting, NAIMS partnered with IMSVISUAL – the largest MS group focused on visual outcomes in MS – for the first time in a joint symposium that was well attended and well received. For many of us, this was the last time we were all able to meet together in person before the pandemic struck in full force.

Grants/Projects: Thanks to the generosity of the Race to Erase MS contributors the pilot study to validate the Central Vein Sign (CVS) has been completed, and initial analyses are underway, with abstract submissions for upcoming meetings in process.

Breaking news! A new \$7.4 million grant to fund a larger definitive study across 12 NAIMS sites to establish the role of CVS in MS diagnosis was funded by the National Institutes of Health with a start date of July 1, 2020. This represents a new level of success for the NAIMS Cooperative that grew from the Race to Erase commitment. The findings from this study will be critical in establishing the usefulness of a new type of MRI scan that will allow an earlier and more accurate MS diagnosis.

Manuscripts: A total of 8 manuscripts from the NAIMS cooperative have been published, and one is in preparation.

Upcoming events: Due to the pandemic our joint NAIMS/MAGNIMS meeting in Reykjavik, Iceland has been rescheduled for next year. This exciting meeting will focus on the application of ultrahigh field imaging at 7 Tesla to better understand MS disease progression.

Please check out our website:

<https://www.naimscooperative.org/history>

What is NAIMS?

The North American Imaging in Multiple Sclerosis Cooperative (NAIMS) was established in 2012 with the support of the Race to Erase MS. The goals of the NAIMS group are to: (1) develop reliable imaging-based measures for disease-progression in multiple sclerosis (MS); (2) accelerate the pace of MS research in North America by creating standardized imaging protocols for use in clinical research; and (3) bring together a range of imaging expertise focusing on the study of MS.



NAIMS

North American Imaging in MS Cooperative



Shop to Erase MS!

Get this limited-run graphic t-shirt exclusively designed by **Shepard Fairey** and **Studio Number One** and bring us one step closer to finding a cure for Multiple Sclerosis!

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shop.erasems.org



Shepard Fairey is an American graphic artist and social activist who blurs the boundary between traditional and commercial art, communicating his brand of social critique via stickers, prints, posters and murals, and in the public space. The artist is perhaps best known for his iconic Hope (2008) campaign poster. Fairey currently lives and works in Los Angeles, CA. His work is included in the collections of the Smithsonian in Washington, D.C., the Los Angeles County Museum of Art, and the Victoria and Albert Museum in London. We are honored for his gracious contribution to this year's Love to Erase MS campaign.





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