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Multiple Sclerosis Without Borders: Taking a Global View

Dr. Wilner:
You are listening to *Neurofrontiers* on ReachMD, and I'm Dr. Andrew Wilner. Joining me today to discuss the global impact of multiple sclerosis, or MS, and strategies for addressing disparities in care is Dr. Victor Rivera. Dr. Rivera is Distinguished Emeritus Professor of Neurology at Baylor College of Medicine in Houston, and the Founder and Inaugural Director of the Maxine Messenger MS Comprehensive Care Center.

Dr. Rivera, welcome to the program.

Dr. Rivera:
Thank you very much Dr. Wilner. Very happy to be with you.

Dr. Wilner:
It's our pleasure. So I'd like to start with a bit of an overview, Dr. Rivera. What can you tell us about the global footprint of MS today, and how should we be rethinking who it affects and where it shows up?

Dr. Rivera:
Well, that's a very good question, because for a long time we thought that MS was basically confined, or affecting only certain groups of people in the world—particularly White Caucasians of European origin, because traditionally, we have seen most of the frequency and high prevalence of the disease in the areas where these groups of people live.

And back in the 1960s, I would say, there was a paper published in the *Annals of Neurology* that indicated that the prevalence of MS in Mexico was one of the lowest in the world: 1.7 per 100,000. That was based on the studies done in one hospital in Mexico City. But it was written by an author who was one of the most respected epidemiologists at that time.

So, for a long time, the idea that MS practically didn't exist south of the Rio Grande persisted—until, actually, the late 1990s, when studies started to show that MS affected not just Latin Americans, but also people of other genetics and other ancestries, including Asians and so forth.

It has been a very interesting evolution of how we consider distribution of MS in the world.

Dr. Wilner:
I remember, Dr. Rivera, I did my neurology training in Montreal, a high latitude back in the 1980s, and we learned that Canadians, for example—generally a Caucasian population—had a very, very high incidence of MS versus those who lived down south.

So you're pointing out that it's not exclusive to the northern latitudes or White people. But is it still more common in that group, or is it really just everywhere, and it's just because we haven't looked properly?

Dr. Rivera:
No, I think it's still quite common among White, Caucasian, and European populations or people with European genetic ancestry. There is no question that Europe, for instance, is the continent with the highest presence of MS, and practically every country has very high frequencies of MS.

However, in my paper, I was able to show that MS now affects practically every ethnicity—every group of people in the world.

Dr. Wilner:
How did genetics and environmental factors work together to influence MS risk and presentation across these different populations?

Dr. Rivera:
Yes, genetics is perhaps 50 percent of the component of who's going to have MS. So you have to blame the Europeans for this situation, because the European presence all over the world—in Asia, Africa, Latin America—appears to have contributed to the appearance of MS in these places. But that goes back to evolution. That happened genetically over the course of centuries.

Anyways, the other 50 percent will be the environment. And now, we have recognized distinct risk factors like smoking, vitamin D deficiency due to lack of adequate solar sun exposure—northern latitudes have less solar exposure and less Vitamin D concentration metabolism than, for instance, countries closer to the equator—and obesity, particularly in children or adolescents. So the environment plays a very important role, but that would be 50 percent environment, 50 percent genetics.

Dr. Wilner:
Once one has MS, now we're interested in the outcomes. How do social determinants of health shape outcomes for people living with MS?

Dr. Rivera:
Very much so. In writing the paper, for instance, I emphasize that the presence of social determinants of health such as poverty, lack of education, et cetera, contribute negatively to the prognosis of MS. In other words, the more disadvantaged the individual is socially, the more chances they have to experience a worse type of MS, most likely due to delayed diagnoses and no effective access to therapy.

Dr. Wilner:
For those just tuning in, you are listening to *Neurofrontiers* on ReachMD. I'm Dr. Andrew Wilner, and I'm speaking with Dr. Victor Rivera about the worldwide impact of multiple sclerosis.

So, Dr. Rivera, let's shift gears a bit and talk about diagnosis and treatment. We know that in many parts of the world, getting an MS diagnosis isn't straightforward. What are the biggest obstacles you see to timely and accurate identification?

Dr. Rivera:
Yes. I would say education—and not just professional education of the doctor that is going to make the diagnosis or consider the diagnosis, but public awareness. The more education the public has about MS, the more understanding of the possibilities of disease being contemplated by somebody.

Now, the problem—specifically to the diagnostic process—is that it's expensive. It requires by the modern criteria the performance of at least one magnetic resonance—MRI—study or several, in the brain and the spinal cord. And we adhere to the current diagnostic criteria.

Also, we have to consider spinal fluid examination with certain techniques, and performance of visual testing such as visual evoked responses, optic coherent tomography, et cetera. So all of these are very expensive studies and not necessarily readily available to all groups in the world or areas in the world. I cannot imagine this being available in a little town in Guatemala.

Dr. Wilner:
On the treatment side, we do have highly effective therapies for MS, but there's the problem of access. How can we reconcile these advances with the persistent inequities we see across the world?

Dr. Rivera:
Well, that's a very serious question, because even if the medication is available in the country, that doesn't mean that it will be accessible to everybody.

I can give you a good example: the social security in Mexico, where practically every medication there has been approved by the FDA for MS and is available in the basic pharmacy inventory. But to have access to the medication is another thing, because not everybody belongs to the social security system. Somebody that doesn't have any kind of insurance coverage or that depends completely on public health assistance will not have access to those treatments.

So, this is just an example, but this happens in highly developed countries like the United States. The medications are very expensive, and so if you don't have adequate insurance coverage, you probably won't be able to get the right medication for you.

Dr. Wilner:
As we come to the end of our discussion, Dr. Rivera, what do you see as the most critical priorities moving forward if we want to make MS care more equitable?

Dr. Rivera:
I would say public education information. And that applies to all of the world, because one of the problems I found is that lack of information about MS exists in many, many places—including very developed Asian countries, who don't have that.

Dr. Wilner:
With those key takeaways in mind, I want to thank my guest, Dr. Victor Rivera, for joining me to discuss how global differences in care impact people living with multiple sclerosis. Dr. Rivera, it was great having you on the program

Dr. Rivera:
It is a pleasure, Dr. Wilner. Thank you very much for your questions.

Dr. Wilner:
For ReachMD, I'm Dr. Andrew Wilner. To access this and other episodes in our series, visit *Neurofrontiers* on ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening.