

BRAINLINE TALKS WITH DR. NATHAN ZASLER

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Dr. Nathan Zasler: I got in the field of physical medicine and rehabilitation probably sometime during my residency training program, got an interest in it after doing a rotation. I always had an interest in sort of more holistic approaches to patient care and felt that the field of rehabilitation medicine offered that, among other things, and then did a rotation at the Rehabilitation Institute of Chicago and really enjoyed it.

And that sort of was the seed that planted my interest that went on to become a residency trainee in that area and then fellowship training in brain injury following that.

At least based upon my knowledge and my training, it was one of the things that I felt was a seminal piece of the foundation of my field of practice, which is physical medicine and rehabilitation, specifically that of a holistic approach to patient assessment, patient care, including involvement of the family, involvement of the community a large that interfaced with the individual that I was treating or that we as physicians in this specialty treat (ph.).

And to me it really rounded out things. It wasn't so blinders-on approach to how we dealt with people as diseases. It really focused on the person and their support system rather than a disease process.

I certainly think that experientially people who have done this long enough would tell you that that type of approach in the long run tends to have better outcomes for all involved than one that doesn't take that holistic approach.

Mild brain injury, in and of itself, is a whole wide field of exploration that has, in many ways, yet to occur. There's still a lot we don't understand about mild brain injury or concussion. In the last 20 years we've gained a lot of knowledge going from bench research, money—much of which has been translational research, to how we treat people clinically, to sports concussion research, to looking at outcomes of people who've been in vehicular accidents.

Those populations between sports concussion and vehicular-related concussions are somewhat different and that needs to be acknowledged. But I think what we've learned is that mild brain injury is, in fact, a type of brain injury. We understand more about what happens to the brain after that kind of injury, how most people do relatively well over a relatively short period of time.

What we don't quite understand is why some people seemingly have longer term neurological problems from that type of injury and how to separate out who is having neurologically-based problems that account for their impairments from other problems that may still be injury-related but not necessarily neurologically-based, and how do you make that distinction.

So that's a puzzle still, I think, that we're working on. I also think there's still some continued lack of consensus regarding how best to assess, that is what tools to use, when to use them and how to use them to evaluate these patients, what the significance of abnormal test findings (particularly on some of the newer technology tests) might mean in terms of the degree of injury, presence of injury and/or prognosis for improvement and/or permanency of impairment.

And then there are still controversies about how best to treat these individuals. And, again, this is not just one group of patients; it's a group with a lot of what's termed heterogeneity. There's a lot of

differences. Some people have problems with headaches; others don't.

Some people have problems with dizziness; others don't. Some people have problems with fatigue or sleep; others don't. So because of that lack of more homogeneity, that is likeness, it makes assessment and treatment more complex.

I think overall some of the newer findings suggest that rest and removal of stressors, whether psychological or physiological, tends to hasten recovery. And that's clearly something that I don't think is generally known in the medical community at large.

That's come mainly from the sports concussion literature, but I think certainly is applicable to the general management of patients with mild brain injury. So that's an exciting piece of information that's come out of formal research that's quite methodologically sound.

One of the other areas of controversy is how best to interpret neuropsychological testing that at least is supposed to tell you whether someone has impairment associated with brain injury. And I think that there are ongoing debates about how one separates that from cognitive impairment due to potentially suboptimal effort.

Chronic pain (which is often associated with post-concussive disorder type patients), affective issues such as depression and anxiety, all those things can in some way interplay and interact in terms of one's cognitive functioning. So how does one separate those out?

In many ways they're inextricably intertwined so we don't have the answers quite there either. I think the other thing is what can we do therapeutically to facilitate people's reentry after an injury like this, and whether that's someone in sports and when they go back to play versus when does somebody go back to driving after a concussion versus when does somebody go back to work.

We really don't have good guidelines in many of those areas. Probably in sports the guidelines are the best.

I think the question of appropriate diagnosis is critical because we start there. One of the challenges we have is how the condition is even defined. You ask 10 doctors what defines a concussion or a mild brain injury, you won't get the same answer, and that's a problem.

So there is no consensus criteria that everybody agrees to as to what defines concussion. So there's your foundation for the problem, which leads to the problem of some people who have it don't get the diagnosis and others who don't have it get diagnosed with brain injury, which often, in my experience, can lead to something called the nocebo (ph.) effect where you begin to behave brain injured even when you're not, which certainly is not a good thing.

Nor is missing the diagnosis when somebody has it. So I think this really needs to be a focus of our work, particularly going back to the issue of coming to a consensus about what are a reasonable set of criteria that are evidenced-based to define the condition and then going from there.

With regard to the issue of very severe brain injury, it's really a different animal. And that is we have people who have severe injuries who have a spectrum of outcomes. Some people, a small group, do fine. And when I say fine, meaning they get back into community, they may even get back to work.

They do relatively well considering the initial graveness of their prognosis and the severity of their injury. There's another group at the other extreme who don't do well at all, who either die or remain in what's termed a vegetative state. That is a state where there's no awareness of self or environment.

There's a group above that that has some level of preserved, albeit inconsistent, awareness of self and/or environment. We call that group the minimally conscious state. This group of patients is termed patients with disorders of consciousness. So a coma, vegetative state and minimally conscious state.

I think there's quite a bit being learned as of more recently, like last decade, regarding these folks and broadening our understanding of the fact that based on bedside exam we can't always tell whether someone's truly vegetative. So there are patients who look vegetative who functionally are not.

That is their brain tells you, based on certain imaging techniques, that actually there's some level of awareness there. And so that's pretty exciting. It has significant ethical, legal and medical ramifications which are just beginning to be looked at.

So I think one of the implications there is the issue of pain and suffering. And someone who's vegetative, the dogma in the neuroscience community has historically been you don't feel pain, you don't suffer because inherently you're not aware of self or environment.

So there's no way that you could. But now the question is do we really know that? And the answer, at least as far as I see it, is no. Certainly in patients who have some clear evidence of awareness, whether minimally conscious or otherwise, they certainly have that potential.

Does everybody who has that potential have the ability to experience pain and suffering? Not necessarily. But the issue is they—the potential is there. So that needs to be considered. And you need to adequately medicate people when you do procedures, you need to consider when you're doing range of motion that that may be painful and take appropriate prophylactic measures, including medication.

So those kinds of things, I think, are important to differentiate between the populations where there's clear evidence if you have it that they're not aware from people whom may be or are clearly found to be aware.

I think the question of how one conveys prognosis is important, whether that's with a patient who's in a vegetative state at the time that you see them or somebody even after a mild brain injury. And I think that a lot of physicians really... And I say this constructively, critically, hopefully.

A lot of physicians aren't necessarily aware of the prognostic criteria that are used when you look at mild brain injury versus severe brain injury. And certainly we don't wanna forget about all those people in between but those tend to be the more controversial ends of the spectrum.

And so I think often times people are too dogmatic in the way that they convey prognoses using words like "He never will" or "She never will", or the other extreme, "Oh, just wait. He'll be back at school and he'll walk again and he'll be fine". I don't think either of those really work.

I think if we're being really truly honest with people and admitting our own limitations in knowledge, we can at best grossly predict outcome into, let's say, five categories – death, vegetative state, severe disability, moderate disability, good outcome – with about 85, maybe a little better, percent accuracy.

So that means out of 100 patients, 15 times we're wrong. Is that an acceptable level of being wrong? People expect physicians to be omniscient and we're not. So I think that limitation in our knowledge needs to be conveyed honestly. A range of outcomes needs to be conveyed and a lot of this depends upon where you are time-wise post-injury.

So if you're at Day Two, that's a lot different with a vegetative patient than two years post-injury seeing

that same patient. So, again, depending on the type of brain injury and the functional status of the patient, the prognosis is gonna implicitly be different.

I think how one communicates with patients and families is critical, particularly when you're in a relationship that potentially is life-long, the life of the patient, the life of the physician. That's very different from a relationship where you go see a doctor for a surgical procedure.

They do it and you're gone. I think many people would tell you that a lot of physicians that they see lack good bedside manner, but they're still great physicians so they go see em. But ideally, I think, in this context you really want not only a good physician as far as clinical skills but you really get more from the patient when you're a physician who can communicate well with the patient.

I think it improves compliance, it improves understanding of the patient of why you're saying to do this or that. It also encourages family to participate in supporting the patient in their ongoing rehabilitation. So I think in my field of rehabilitation medicine that type of training gets maybe more emphasis than in other specialties.

That's not to say it doesn't happen in other specialties, and there certainly are doctors in other specialties who have great bedside communication skills. But I think it's a particular tenant (ph.) of this field because of the nature of the patients we treat and the chronic nature of many of their disability-related issues relative to how long they're treated for.

The other thing to appreciate is that when you're dealing with chronic disability, it impacts everybody. It's not just a patient issue. This has an impact on any of the providers involved, whether family, significant others, caretakers and potentially the community at large.

It's potentially a societal (and I don't mean to use the word pejoratively) burden when somebody has to live in a community or tries to be reintegrated into a community who's a wheelchair user. We have very different attitudes culturally in this country to many other countries about people with disability.

My kids, for example, have been around people who are wheelchair users since they were this high, but many kids are like freaked out, for lack of a better phrase, when they see people with disabilities. And that's driven (not just kids; adults as well) that's driven by ignorance.

And one of the things that I think we have an obligation to do societally (ph.) is educate people about what disability is and how people with disabilities are people first. We don't do that well enough, I think, in our country. In many European countries I think it's much more well done than here.

I think it's important to educate caretakers on how they can avoid burnout because it's a common occurrence. Many people feel guilty if they're not caring for their loved one, particularly a more severely disabled loved one, at home.

I never discourage it but I think it's always important to give people an out and let them know there are other options. They have to preserve their family, they have to preserve their financial base. You don't wanna get drained of money caring for somebody over five years who's gonna live potentially 25 years.

So there's all kinds of issues that need to be considered in the longer term estate planning for somebody who's more severely disabled.

I think from my experience in dealing with folks over the last 20 years, and I've seen thousands of people with brain injury over that time, it's very important to encourage people to remain motivated. Moti—motivation to me is 50% of the battle regardless of how severe an injury somebody has.

I have one patient who I still follow (I've probably followed him for close to 20 years) who was very severely injured. Mother didn't wanna hear "no" from anybody. And I'm not a "no" man; one of my sayings is "Never say never". Although there are times when I say, you know, "I think this is it", but it's rare.

And she never gave up that he could be better than he was. And he didn't walk for probably—at all for probably four or five years post-injury. You talk to most physicians and say someone's not walking by four years, what are the odds that they're gonna be walking, and most people would go... Like that.

But, you know, he didn't walk probably til eight, 10 years post-injury and now he walks without an assisted device, which is incredible. And I would never have thought that that was possible. I've had people who have been vegetative for protracted periods of time who had remarkable recoveries and went on to go to college and complete college educations.

Again, not something expected, not something based on probabilities that should have happened, but it did. So there are gonna be exceptions. There are people who emerged from vegetative states many months or years beyond where they likely should have or would have and people say, "Oh, that's a miracle".

Well, again, not questioning religion at all, I don't know that it's a miracle; it's just one of those outlier (ph.) cases that happens. It's not likely but it happens. So I think given that and the fact that we don't know at this point who those people are gonna be, to be overly dogmatic and say it's never gonna happen rather than saying the probability is low that it's gonna happen is important because taking away hope, I think, is a bad thing in any disease or disability.

So maintaining motivation by preserving hope, I think, is one of the key things that we should be doing as professionals at whatever level we're involved.

I think when you bring up the question of standards and guidelines for assessment, as well as care, and you apply it to our field, there's not a lot of good things to say. Certainly, I think, people have made attempts on a limited basis to look critically at the literature and develop what are termed evidence-based guidelines for care.

We have a number of those, certainly not a good number relative to the number of issues that need to be addressed in the context of caring for people with brain injury across the spectrum from mild to severe. So this is clearly an area when you look at the rest of medicine where I think neurologic rehabilitation is probably somewhat behind.

Not because we wanna be but because it's the complexity in a sense and the heterogeneity of the population that we treat makes, in some respects, the studies more difficult and more methodologically challenging to do. The other issue is that when you have treatments that you think are gonna help people, you don't hold back treatments to study a population and then you have to go to find a population who potentially didn't get the treatment to compare your results to.

So there are challenges as far as the study design issues that we have that maybe aren't the same as somebody who's in cardiology or internal medicine. But I think that we are clearly making headway there, no pun intended, and we're seeing more and more evidence-based literature come out.

And as that comes out, we'll be better able to develop guidelines, or at least options, for both assessment and treatment-related issues.

I think there's a lack of guidelines in all areas. We probably have done better in some respects in both areas over the last 10 years. I think the issue is there's so many more people with mild TBI that maybe that's why some people perceive that that's more an issue there.

When you look at absolute numbers, about 80% or more of all brain injury probably falls into that mild rubric. So as far as an area that would serve the most people, certainly that might be the place to emphasize first, but as far as cost burden, in many ways it's the other end of that spectrum that has the highest cost burden per person compared to the mild.

I would hope to some extent that it does. You know, the populations are very different. When you have people involved in work accidents, motor vehicle accidents, they have different incentives if they have a litigation or worker's comp than people who are in athletes—in athletics, particularly competitive sports, specifically professional sports who wanna get back in the game, whose coaches don't wanna pull em out.

So there are disincentives there to not reenter whereas in the community at large, like people who get in vehicular accidents and there's litigation, there's incentives not to return and they benefit potentially by not returning. So you need to look at the literature also understanding those issues as far as incentivization versus disincentivization relative to the patients being studied.