Brainline Talks With Dr. James Kelly

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Military and TBI

Dr. James Kelly: Well, the work that I've engaged in with the Department of Defense began back a couple of years ago. And it really did relate to the incidence of blast injury in Iraq and Afghanistan. With the use of improvised explosive devices and rocket propelled grenades and other similar kinds of devices now, that we really didn't see much of before. There were booby traps back in the Vietnam era. And there were certainly bombs. And there were certainly bombs before that too in the other wars of our nation.

But now what's happening is the surprise attack from something that you're very close to. And under those circumstances, there can be a blast wave effect. And there can be additional secondary and tertiary effects. Secondary being things that are actually flying through the air that cause bodily damage. Or being blown up against something, a physical obstacle like a wall or inside of a vehicle. And then there are other injuries that happen to the body associated with that, with burns and inhalation injury and so forth.

So those of us who have been looking at injury issues in our academic careers have been brought into that military world to help figure out what's really happening to the body? And the question that we've been asked also is at the milder end of the spectrum of concussion, is there a parallel between the work we've done with athletes and the issue of the military in terms of who goes back, who has to be sent out for some span of time. How long do they stay out? How do you decide whether they're okay to go back? What do you have to go through? All of those sorts of steps that we do in the athletic world. What instruments should we be using to test them? And so that kind of work is what I and others have been engaging in for the last two and a half years.

Dr. James Kelly: The progress so far is really primarily at the screening and detecting brain injury at the mild end of the spectrum here when they come back from deployments overseas. Then we can detect problems that were previously being misunderstood, glossed over, never identified. And now there's much more of an effort on the part of the military to pay attention to those problems, to get the people the help they need and not to poo-poo it as had been in the past, much like the athletic world had.

And so the big progress, at least at the mild end of the spectrum for brain injury is that the military has always been very good at severe injury care. And in theater if you will, in Iraq and Afghanistan, the care that's being provided our military is so sophisticated and so quick now that there's an unprecedented survival rate from injuries compared to previous wars. We're much, much better at saving lives now in that vicinity.

There isn't much that academic neurologists like me are going to offer that. Our contributions in the military will be what lingering problems that maybe could be ... an intervention earlier could have helped? Or else could we identify that could be a solution down the road? And how do we help these people who really are injured and have a permanent problem cognitively, behavior change, a deficit in some way? What do we do about them and for them? And those are the things that we engage in and I've been involved in.

Dr. James Kelly: Well, there's certainly room for change in the military system in the detection of mild traumatic brain injury and the handling of individuals in terms of their disability concerns. One of the problems that we're seeing is that the handoff, if you will, from acute military active military care and

acute care in that setting to the VA system which is more long-term rehabilitation oriented, the handoff doesn't work very well. And so the VA has gotten better at screening and has teams now up and running that bring in all individuals and screen them for evidence of post-traumatic stress disorder and mild traumatic brain injury. And if in fact they have problems, then they're sent off to more detailed evaluation and care.

But those individuals that I've come in touch with have often had months, if not a year, in between the care they got in active military and the VA opportunity. And sometimes they get nothing in between. Sometimes they've waited so long that they've actually gotten worse. And sometimes they're misunderstood at the earlier stages and not given the proper disability status. So that they can't apply for the proper care in the VA system. So there are administrative problems that interfere with that handoff. There's timing that's way too long. And people know this. It's not just me talking. These are things that I've heard and I know people are working on. But those are the areas of improvement I think that we really need to make, those systematic changes that make it all work better. So that there's a seamless care that works from one to the next.

Dr. James Kelly: The issue of post-traumatic stress disorder coming from this war maybe worse and greater than that of traumatic brain injury. And one of the things we know is that post-traumatic stress disorder changes the brain. It changes brain function. There are areas of the brain that are specifically injured in some way physiologically that change it. And we know that. And individuals with PTSD can look as bad or in some cases worse on neuropsychological testing than people who had the mild traumatic brain injury.

And so there's growing evidence that post-traumatic stress disorder is a type of brain injury, not a biomechanical brain injury. Although, certainly there are some who've had biomechanical brain injuries, traumatic brain injuries, and PTSD simultaneously or mirrored enough in time over a span of time that they have both conditions. And so that's what we're wrestling with now is how to identify those people with those problems and how to help them best. And it may very well be that what really happened to them is less important than we had thought.

The problem now is looking at their constellation of symptoms and treating them, regardless of the cause was. So that under those circumstances, you take the person the way that he or she is and address those issues that they present with. And not get bogged down with what was causative under the circumstances as much as we have so far. That's what I struggle with. Because all my career, I said, well, what happened to the person? We need to know what happened to that person's brain in order to make sense of the treatment.

Now, even I'm having to come around to the way of thinking that, gee, maybe it's more important to pay attention to what their issues are right now, right here, in my presence. So that I can deal with and treat. And maybe it really is more historically what we would call psychological or psychiatric. But it's really neurological anyway. We really need to be treating the nervous system under those circumstances. And so I think that's the shift in thinking and the thing that we struggle with the most now as we do the research on those people.

Dr. James Kelly: There are people who have been exposed to as many as dozens of blasts in Iraq, perhaps Afghanistan, with multiple deployments. And the challenge under those circumstances is figuring out whether those blasts in succession or in accumulation over time really did cause an injury or not. So if you're far enough away from a blast, are you automatically affected by it? How close do you need to be? What were the things that actually happened to you under the circumstances? And how do you distinguish that from the horrific scene that you just witnessed under the circumstances? And what you had to do about it.

So the challenge that we have under the circumstances on blast injury is that we don't have the cleanness, the crispness of being able to say, all right. We've got three different angles of video. Here's the concussion. And now we're going to deal with this and that and the next thing. And here's the normal evolution of change and so forth. Now we've got people with multiple exposures. And we don't know which if any produced what we're seeing as mechanical injury by a mechanical traumatic brain injury versus other things that were just as problematic in terms of their function.
So blast in that regard is a whole new concern for us. And the other part of that is there can be a change that effects the body with a blast injury in ways that we're looking into now that actually don't even have to push the head up against anything and can still be problematic for the brain because of changes to the chest and abdomen and changes in blood flow to the brain. And so all of that still has to be figured out because the research is ongoing in all of those areas.

Dr. James Kelly: I think among the trickiest issues, very forward at the military front, are the life threat issues that individuals experience. If we're to just take one example of a bomb exploding, a roadside bomb. Those individuals for whom that's near are immediately affected by the sound or often their ears are affected. Sometimes their eardrums are perforated. So there's the resounding sound and the residual effect of that from a hearing perspective, the disorientation, the surprise, the fright. And then they come under fire by small arms fire.

So their life is threatened not only by the immediate explosion, but by being then sitting targets. And so people have to kind of watch out for each other, pull together and so forth under those circumstances. I think that an individual who experiences that sort of thing changes in many ways under the circumstances. The nervous system is affected not only by waves and so forth, but by the actual emotional experience that occurs under those circumstances. And those individuals I think have ongoing needs thereafter that can't be dismissed.

Whether they really had a traumatic brain injury or not, they have experienced a life changing, life threatening event that for them may haunt them for a long, long time. There are things that we can do to help them through that. The earlier we intervene in those ways, the better. And I think those are the kinds of things that we really need to pay attention to.

The forward front decision making as to are you okay or aren't you can't just be left to that question. Because that individual probably doesn't know if they're okay or not until some slightly longer span of time. So the ongoing assessment and care of that individual with a safe environment, as silly as it sounds in a war zone, and the protection that's needed for them to truly be okay is something we need to pay much more attention to.

Dr. James Kelly: They actually have a variety of therapeutic interventions to address the issue to actually talk it through. Occasionally, there are some medications that are helpful for certain individuals. And there are anxiety medications and so forth. But one of the things we're learning is that the sooner in theater, not necessarily very far forward, but in theater and backstage if you will, talking about that issue, getting it out in the open, not necessarily reliving it in some, you know, some therapeutic session. But going through it with somebody so that it's no longer as threatening to get it out, that kind of thing in a proper structured fashion is very helpful. The more it's pushed to the side and individuals are expected to move forward and carry on and deny all of this other stuff that they carry, the more it's likely to cause them trouble down the road. And then we have much more work to help with on their return.

Dr. James Kelly: I think there's actually a rethinking of the process that we're going through as to what's the level of seriousness that you need to take a specific injury? Because in the sports world, it can be a very straight forward and simple issue that doesn't have all the other components that a war time episode would. But as we now understand the overlapping of the emotional aspects of stress associated with the injury and the change in the person's life and all the other things they witness in the

war scene that could be horrible, now we're learning that maybe there is little bit of that, not the same degree, but in athletes.

That there's a change. And there are things that are truly not just unpleasant, but beyond that, that are stressful and distressing to the individual that aren't just the cognitive problems. And so just as an example of that, I'm being asked to speak to the issue specifically in Zurich coming up this fall. There's the third international sports concussion meeting that's happening there. The International Ice Hockey Federation, FEFA, the soccer oversight worldwide and the International Olympics Committee that sponsored this.

And they're actually asking the panel different questions. And I think partly it's because people are looking at the military experience and reading much more about it and understanding the overlap of psychological and neurological problems in a different way. So not only has the sports world contributed to the military thinking, but I think we're starting to see contributions in the other direction.