Defense and Veterans Brain Injury Center
"The TBI Family" Podcast
"Substance Use and TBI"
Episode 105, Transcript
TRT: 27:48 min
Host: Dr. Scott Livingston

February 1, 2017

Daniel Hines: He got into a pretty bad fight where he was apparently attacked by two guys and then he injured the guy, protecting himself was the storyline. But that just goes on to show how this person, who had no real reason to be this aggressive, was now fighting.

[theme music]

And fighting himself at times, but fighting the world.

[theme music]

Scott Livingston: Hello and welcome to The TBI Family, a bi-weekly podcast for caregivers of service members and veterans who've experienced traumatic brain injuries. This program is produced by the Defense and Veterans Brain Injury Center, otherwise known as DVBIC. If you've been following the podcast, you may have noticed this episode is running a bit late. We had some technical difficulties with one of the stories; and as you can tell our former host, Dr. Samantha Finstad, is no longer here, as she has moved on to a new position at the National Institutes of Health. And we wish her well. I'm Dr. Scott Livingston, director of DVBIC's education division, and the new host of The TBI Family. In this episode, we're going to talk about substance abuse and TBI. [music]

A growing body of research is looking into the effects of substance abuse including drugs and alcohol, on recovery from a traumatic brain injury. DVBIC medical writer and science communicator Deborah Bailin spoke with two DVBIC specialists who told her addiction can not only make a TBIs effects worse but can derail full recovery.

Deborah Bailin: Today I'm here with Lars Hungerford and Ezra Aune, and we're going to talk about TBI and substance abuse. But first, Lars and Ezra, can you introduce yourselves?

Lars Hungerford: Sure. So yeah, I'm Lars Hungerford, I'm a clinical neuropsychologist by training. I'm the senior clinical research director for DVBIC out here at Naval Medical Center San Diego.

Ezra Aune: Ezra Aune. I'm the regional program manager for the Defense and Veterans Brain Injury Center for the Western Region, which covers Alaska down to southern California.

Bailin: Thank you both. So my first question is really very basic, but I'm thinking about first-time caregivers and some of the knowledge gaps they may be dealing with. And so for them can you just briefly describe what substance abuse is? How is this something different from just having a drink now and then?

Aune: Obviously, in the DSM-5 there's some specific criteria by which somebody would meet diagnostic criteria for a substance use disorder. Anything from mild to moderate to severe. Some people just casually use alcohol, and then we find this sort of addictive behavior on the other end of that continuum, which is typically characterized by this sort of compulsion to use alcohol or other drugs, where they seem to have lost control of their use of it or they continue to use despite a good number of reasons not to, and there seems to be this compulsive behavior around

the substance use. And I think that's the big concern that we'll hopefully touch on today, is of course there's some shame attached to that a lot of times and so they're not always forthcoming with what's going on with substances and so it really takes a good look at assessment to find out what's going on with those folks.

Bailin: Lars, do you want to add anything?

Hungerford: Let's say we're dealing with somebody who's had a concussion and not a moderate or severe injury, we're going to be looking for the typical indicators that we would see in the normal, non-injured population. So are we binge drinking, are we having drinks every day, are we missing work? But yeah, it'd be the typical things that we would look for.

Bailin: Can you talk now about what kind of research is happening around TBI and substance abuse, particularly anything that might be about service members or veterans, or just relevant to caregivers in general with regards to our service members?

Hungerford: there's a number of factors that inflate together to create an increased risk for substance use, and in particular, alcohol. Those factors are deployment, post-traumatic stress disorder, relationship problems, you name it; but TBI was a risk factor. And there was a study over 13 thousand soldiers that were returning from Afghanistan and Iraq, and they were nearly 3 times as likely to present with a substance abuse problem. And that was not only seen in American service members; but also there was a study on 4 thousand British soldiers. They were 2.3 times more likely to report alcohol dependency. So this is something-- and this was-- TBI was found to be a risk factor for binge drinking even after controlling for PTSD, than [McGrath?]. So if we strip out the TBI component-- we see that having sustained a documented TBI, so it's not somebody that's just saying they had one, it's actually somebody that has verified TBI, that plays a role and to go along with that. Some of the really interesting research you discussed-- there's some the animal model and there's some hypotheses related to narrow inflammation. And basically, the hypothesis is that narrow inflammation can lead to substance use, so alcohol use disorders. And conversely-- so TBI can cause neuroinflammation. Inflammation can cause substance use disorders. And then those substance use disorders increase inflammation. So it's this vicious cycle where you've got a inflammatory process in the cerebral cortex which becomes this vicious cycle that amplifies alcohol use. That is something that is relatively new to me and is highlighted in an article by Weil et al from 2016 called Alcohol Abuse after Traumatic Brain Injury Experimental and Clinical Evidence and it's a very interesting topic.

And lastly, there's also some evidence that the dopaminergic system plays a role in this and essentially, brain injuries disrupt the dopaminergic system in that there's a hypo-functioning of that dopaminergic system. And that that is the major risk factor for substance abuse disorders.

Bailin: Dopaminergic. That's a word that some of our listeners may not have heard before. Can you explain what a dopaminergic system is [laughter]?

Hungerford: Yes, fair enough. As I was saying this I was like, "I'm probably going to be [laughter] losing some people here." Yes. So dopamine is a neurotransmitter and is very strongly involved in mood regulation and pain and it is essentially one of the things involved in depression as well. So when you have a lack of dopamine, your brain's just not working, it's not going to communicate as well. You're going to have cognitive problems, so you're not going to be able to think as clearly. You're also going to have behavioral and mood problems. You're going to have difficulty with your attention, your memory, your ability to kind of think through complex things. And so one of the things that we see when we have difficulty in the dopaminergic system, there's a process in which a person has to decide, okay is this alcohol, the positives and negatives, do they even out so that the positives kind of outweigh the negatives? And what I mean by that is, okay, so I'm using alcohol to make myself feel better. There are there going to be some negative consequence to them. And when you have an injured brain and dopaminergic system that's not functioning properly, you can have difficulty trying to reasoning that out. And you might make a bad decision. Or as well, the negative consequences aren't that bad. But in reality, you're gaining weight, you're constantly late to work, getting yourself into trouble, and your wife is getting ready to leave you. And you're not picking any of that stuff up because your brain isn't working properly.

Bailin: Yes, that's much better. Thank you. So, given all of these things that can occur, and someone who's had a

TBI, and who's dealing with substance abuse. What can caregivers do to help?

Aune: A lot of times they're keen to providing treatment to a patient. Makes you like they don't have the all the information. And so, I think, staying engaged-- with the provider staying engaged with the patient, being involved in that process, and not being hesitant to discuss these issues, and how they're impacting the recovery from TBI. A lot times, again, on the treating professional side, they don't get that information. And a lot of times the family feels like it's unsafe to come forward with that information or they don't fully understand how it's impacting them. Or sometimes there are other things we talk about on the addiction side. It's co-dependence or they're part of the addictive system in the family. And then in some ways, they're kind of enabling that to move forward which doesn't really do the patient any favors. But I think staying engaged and keeping that information out there and understanding that early intervention will really help the patient.

Hungerford: This is Lars. One thing that I think it's also really important to discuss is pre-injury levels of alcohol consumption can absolutely impact your post-brain injury alcohol consumption. So if you're a heavy drinker before, you're going to want to watch out for that person even more after their head injury. Versus if you were a teetotaler, somebody who never drinks alcohol, then you're probably not going to need to be on the lookout for drinking behavior as much as you would with somebody that is a heavy drinker.

Bailin: Is there anything else that's unique or different in how you deal with substance abuse in someone with a TBI versus someone without?

Aune: From my perspective, if I had someone who had a substance use disorder and I learned that they had a TBI the very first thing I think of is that that's something that needs to be on the treatment plan. It's absolutely something we need to keep an eye on and it provides additional health reasons why they're going to want to stop abstain and engage in a process of recovery, so that not only can they recover from their substance use disorder, but it'll give their brain an adequate chance to heal up the way it should.

Bailin: My last question is just about what is the long-term prognosis for TBI and substance abuse together?

Hungerford: So I'll give you a little story about just an actual patient that I saw back in, boy, probably 2006 or 7. This was a gentleman who was premorbidly a heaver drinker, and he sustained a sever traumatic brain injury in a car accident, and afterwards resumed drinking, and had been doing so, and was largely out of control, was having post-traumatic seizures and then was having alcohol-induced seizures and falling, and had, probably, subsequently, I think four or five other mild head injuries, so concussion. And was also a heavy smoker. I think he was smoking about a pack of cigarettes a day. His prognosis before we saw him was bleak, and he was basically doing a lot of different things that were causing him injury over time, and repetitively injuring an already severely injured brain. We actually treated him with neurofeedback, surprisingly enough - I know some people don't necessarily believe in that, but it's a somewhat new technology which uses brainwaves to alter behavior - and ultimately we were able to get him routinely involved in Alcoholics Anonymous meetings, and he became completely abstinent. We got him to quit smoking. He stopped having seizures, stopped having falls, so no more concussions, and he was actually able to resume work on a limited basis working for his mother at the family farm. So this was a case that was trending towards disaster and ultimately made a big turnaround because the intervention was successful. My belief is that had that not been successful, he was going to die. I think that the prognosis depends on whether or not the person is accurately identified and treated. In the animal models, what we find is that after brain injury and with comorbid substance use disorder, if we stop the substance abuse and provide an enriched environment we can actually improve a lot of these things. So the cognitive deficits from the brain injury and through-- and we don't have this vicious information cycle that we talked about.

Aune: Thank you, Lars. I think the prognoses would be a variety of the end of different trajectories based on how severe of a substance use disorder are we talking about. If it's a mild, moderate, or severe substance use disorder, and whether or not the TBI, obviously, was mild, moderate, or severe. I think those factors are going to play out big in what you could expect for our prognosis but we do know that substance use disorders are progressive, and I think that's a very important piece of arriving at a sort of prognostic outcome is whether or not they're honest about their substance usage truly in recovery, because if they've got cognitive impairments or they've got a brain that's trying to heal from a TBI, and they continue to drink, they continue to use substances, whether they minimize that or

downplay it, whether they're honest about it or not, I think is a big factor in what their prognosis is going to be, really the extent to which they allow their brain to heal, and get involved in a recovery process and give the brain room to heal by not introducing additional substances which slow that process. So a real supportive sober support network and addressing the substance use piece within the context of, "I'm trying to let my brain heal," will really improve that prognosis.

[music]

Livingston: If you'd like to hear more about this subject, Ezra and Laura has recently hosted a webinar for medical professionals, it'll be up on our website soon, dvbic.dcoe.mil.

[music]

Daniel Hines is an army psychiatric nurse, who has worked in TBI clinics and has years of experience in the medical field. But it was seeing a friend struggle with substance abuse problems after TBI, that really drove home the challenges of dealing with substance use and traumatic brain injury. He tells us his story.

Daniel Hines: Hello. My name is Captain Daniel Hines. I am in the United States Army as an army nurse. Before becoming an army officer and a nurse, I was a medic in the air force and challenged my LPN license. So I've been in the medical field since 16 years of age. In 2011 through 2014 I was at the National Training Center embedded into the desert, out by Barstow. We were a very isolated base. The mission prepared units to transition out to Afghanistan or where ever they were going to go. It was a lot of real world scenarios, so it was just an honor. And I was part of a clinic running a clinic primary care opportunity. At the same time, I, as an officer, crossed paths with a battle buddy that I was enlisted with, and he was a recruiter a few hours south of me. Early on, of course, we started hanging out and was able to grab dinner. But right away, I noticed that he was a little bit edgy, even angry and irritable at times. And this something that for the 10 years I had known him, I did not ever sense. And also, as rhetoric about the military and being burned out and not really enjoying it, was not the storyline that I had heard before. And his man was passionately in love with the service, and he loved his soldiers. He was starting, this soldier, this battle buddy, was starting to get into bar fights and was starting to go down a path, again, was not what he had done.

[music]

Three IED blasts, Purple Heart, made E6 in six years, so he was just a stellar soldier, looked sharp in the uniform. And really I thought, when he said he was recruiting, my first thought before I actually started interacting, was, this is the best thing the army could do, was to allow this gentleman to be part of this process of recruiting the best of the best. So finally, I had a sit-down with him, and I said, "Hey. As a friend, as a fellow soldier, a battle buddy, I've got to let you know that I'm seeing a change in your behavior and your personality, and I'd like to offer you some help." Of course, at first, he said no. He didn't want any assistance. He pushed me away a little bit, which was expected. Eleven Bravo, tough soldier, doesn't need any help. And also, he did talk about the stereotypes of TBI being mental health, and he didn't want anybody to think he had problems. And I remember, also learning as an army nurse, that that was something that we wanted to make sure there was a division. Not because of any reason to separate it. But the way we deal with TBI, traumatic brain injury, is different than what we would do with someone who has mental health issues that would be impacting them. And even later in life now, as a psychiatric nurse, we noticed again that it is very important to treat the TBI as its own entity. So early on, and with all the energy surrounded this topic, it was important that I gave this young guy an opportunity to know that TBI was not, in any fashion, going to impact his career. If anything, it's going to just help him understand what's going on.

[music]

He got into a pretty bad fight, where he was apparently attacked by two guys. And then he injured the guy, and protecting himself was the storyline. But that just goes on to show how this person, who had no real reason to be this aggressive, was now fighting. And fighting himself at times but fighting the world. It just was not abrupt, but he stated it was a gradual change. And he didn't understand or know who he was his relationships were being impacted; his family was being impacted; and, unfortunately, his career and the army that he fought so hard for. He definitely-- now that he knew he was sort of in trouble with his own personality and not able to control, he reached out for help;

and he got the help that he needed. He was first seen by a primary care physician that was designed just to work with TBI candidates to help screen those folks out. He was given labs and brain scans and everything that medicine could offer out there at NTC. He was seen by providers and therapists. He was put into an anger management program. He really, really, really turned himself around. At that Y in the road, those choices that he made-- if there wasn't an intervention, I believe he would have just spiraled out of control. He would have been arrested; he would have ruined that stellar career he had. I could not tell you where he is-- would have been.

[music]

But I want to tell you that in 2017, he's a few semesters shy of becoming a commissioned officer. He is one of the calmest-natured persons I've seen. He remained consistent with his counselors, his primary care provider did everything and used the word, "He was compliant." And you can definitely tell that at the phase that he's in his life and his personal health that he understands things better. He is willing to reach out for help when needed, and as he's moved from assignment to assignment, he maintains that relationship with the TBI clinics and the primary care providers. And stated one day, he said, "TBI doesn't define me, but I definitely let my providers know that I've experienced trauma in the past, and it did give me a wake-up call when I realized my behavior and my actions were so disrupted."

And so as nurses and as outreach programs, it is a constant battle to be ahead of the game, but the one takeaway is that we, in our military careers and big Army, is still reluctant to reach out for help whether it is in a traumatic brain injury and/or mental health. But the best thing that we can do, as battle buddies, as clinicians, as families, as the people that spend the most time with these service members is when there is a change in personality, if there's a change in behaviors, if a soldier is disrupting his routine, and he was amazing, or she was amazing, recently and then now there's this change, we pause and we ask them maybe why. Why do you do you think this is happening and would you be willing to go and maybe be screened and assessed to possibly see, especially if you understand your soldier.

[music]

I am blessed to be at a larger facility with lots of resources, but, unfortunately, a lot of the smaller bases and/or a larger military base with lots of volume, these things can be overlooked. And so, as a leader and as a campaign, I would encourage us all to understand what TBI is. And it's important that we use the month of March, but we use year round opportunities to train our staff and our clinicians and our soldiers to identify if someone's had a TBI or any kind of blast injury. I hope this is helpful. I, again, will tell you that I don't expect a pat on the back, but I'm so happy that I felt confident enough to tell my battle buddy and my friend to pause, and let's just go maybe go get some help and maybe get some answers on maybe why you're doing what you're doing.

[music]

Livingston: You may have noticed Daniel mentioned how we can use the month of March to get out the word about TBI. That's because March is National Brain Injury Awareness month. Soon, we'll tell you more about how you could help us get the word out about traumatic brain injury during our observance of brain injury awareness month 2017.

[music]

As always, if you have any questions about the podcast or about DVBIC products or programs or are interested in telling us your story, please feel free to email us at info@dvbic.org. On the next episode, we'll talk about a long-term study of, well, you, the caregivers of service members and veterans, that's being conducted by DVBIC and the National Intrepid Center of Excellence.

[music]

The TBI family is produced and edited by Terry Welch and is hosted by me, Dr Scott Livingston. It is a product of the Defense and Veterans Brain Injury Center, commanded by Army colonel Geoffrey Grammer; and the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury, commanded by Navy captain Mike Colston. Thanks this week to Navy Medical Center, San Diego, and Naval Hospital, Camp Pendleton. Thank you for listening, we'll see

you in two weeks.