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Breaking the Silence: Violence as a Cause and a Consequence of Traumatic Brain Injury

Jean Langlois, ScD, MPH, Brain Injury Professional magazine

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The overlap between traumatic brain injury (TBI) and violence is an important yet little understood problem. The exact number of violence-related TBIs each year is not known. The Centers for Disease Control and Prevention (CDC) estimates that 11% of TBI deaths, hospitalizations, and ED visits combined (a total of 156,000 each year) are related to assaults (Langlois et al, 2004). But this number likely is low because it excludes the many other TBIs, including concussions, caused by violence that go unidentified and unreported. Although not a focus of this article, prisoners and young children are two of the groups at high risk of a violence-related TBI that may not be identified. (See articles by Wald, et al, and Berger, this issue).

Furthermore, the problem of TBI and violence is complicated by the fact that violence is not only a cause, but a consequence of TBI. Specifically,TBI-related cognitive and behavioral problems can also result in aggressive behavior that leads to perpetration of violence, or a lack of insight and judgment, and resulting vulnerability, that can lead to victimization. Depression after TBI can lead to an increased risk of self-inflicted injury, including suicide (Oquendo et al., 2004). Although not a focus of this article, suicide is an important aspect of violence that is addressed elsewhere in this issue (See Brenner article).

The goal of this article is to increase awareness among TBI and health care professionals about the overlap between TBI and violence by summarizing the epidemiology and providing case examples for victimization and aggressive behavior. In addition, we focused on intimate partner violence and TBI because of the limited information published about this topic.

Violence as a Cause of Traumatic Brain Injury

Intimate Partner Violence

The term intimate partner violence (IPV) is also known as domestic violence, spouse abuse, or woman abuse. An “intimate partner” is defined as a current or former partner, including a spouse, boyfriend, or girlfriend (Saltzman et al., 1999). After a relationship ends, many people continue to be at risk for violence from former partners. Intimate partners can be the opposite or the same sex as the victim (Burke et al., 1999; Moracco et al., 2007).

Each year in the United States, women experience about 4.8 million intimate partner-related physical assaults and rapes; men are the victims of about 2.9 million intimate partner violencerelated physical assaults (Tjaden et al., 2000). However, these numbers may underestimate the extent of the problem as certain populations who are more likely to

report IPV (prisoners, those living in shelters, transient people, and the homeless) are less likely to be surveyed.

The number of cases of TBI associated with intimate partner violence is not known. However, as mentioned above, CDC estimates that at least 156,000 TBI-related deaths, hospitalizations, and emergency department visits in the U.S. each year are related to assaults (Langlois, et al., 2004). Strangulation or blows to the head may occur in 50 to 90 percent of IPV physical assaults against women (Wolfe et al, 1997; Greenfield et al., 1998). Thus, the true number of violence-related TBIs may be much higher than the CDC estimate. Multiple TBIs, including concussions are frequently reported by incarcerated women with a history of IPV (Pamela Diamond, PhD, University of Texas-Houston, Personal Communication, October 2007).

In one study, 60 percent of the women with IPV-related TBI continued to exhibit TBI-related symptoms 3 months after the injury (Monahan and O'Leary, 1999). Women with TBI frequently exhibit reduced capacity to make informed, consistent choices about whether to leave or return to the perpetrating partner, and their ability to plan and to respond appropriately to safety, health, child care, and parenting issues may be significantly compromised (Monahan and O'Leary, 1999). This increases the likelihood that they will remain in a violent relationship and the risk of sustaining additional injuries, including TBI.

Many victims do not report IPV to police, friends, or family because they think others will not believe them and that the police cannot help (Tjaden et al., 2000).

This may be particularly true for persons with traumatic brain injury (Reichard et al., 2007) for several reasons. First, individuals with TBI are more likely to be dependent on a perpetrator for financial support and physical care. Second, communication problems associated with TBI may make it difficult for victims to report victimization. Third, the perpetrator may claim that the victim should not be taken seriously because of their TBI-related cognitive problems. Finally, victims may not be willing to admit that they have had a TBI because of the fear of negative consequences such as losing custody of their children.

Case example

Debra was born in in 1952. She spent 10 years in an abusive relationship with her female partner, and during that time sustained several possible concussions. In 2000, she was lying in bed asleep and was shot several times, including once in the head. She was rushed to the ER and remained in the hospital for 9 days for cranial hemorrhaging. (See sidebar "One Woman's Story" for a more detailed account)

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Violence as a Consequence of TBI

Victimization

A victim is defined as a target of emotional abuse or threatened or actual physical or sexual violence (Saltzman, et al., 2002). Victimization can include physical violence, sexual violence, psychological or emotional abuse, stalking, and neglect.

Persons with disabilities are particularly vulnerable to violence, and their position of vulnerability often makes it more difficult to leave a violent situation. The number of persons with TBI in the U.S. who are victimized each year is not known and existing information regarding the victimization of persons with disabilities has been gleaned from a small number of studies (Marge, 2003). Such studies have shown that persons with disabilities are 4 to 10 times more likely to become a victim of violence, abuse, or neglect than persons without disabilities (Petersilia, 2001). One recent study found that men and women with activity limitations were more likely to experience physical, emotional, and financial abuse, and that women with activity limitations were more likely to experience sexual abuse (Cohen, et al., 2006). Another study found that women with disabilities were 40% more likely to experience intimate partner violence than women without disabilities (Brownridge, 2006).

Research suggests that certain conditions increase the likelihood of violence, abuse or neglect. One study found that violence was more likely among women with a physical disability when they also had more than one disability, a hearing impairment, or were divorced/separated (Milberger, et al., 2003). Another study found that men and women with activity limitations were more likely to report intimate partner violence if they were single, younger, had lower income, and/or had poor health (Cohen, et al., 2006). (For more detailed information about victimization, see the sidebar).

Little is known about the experience of victimization among persons with TBI, however. A recent qualitative research report by Reichard et al. (2007) has begun to shed some light on the problem and provides a number of examples. Selected narratives collected as part of this study are presented below.

Case examples

Victimization of persons with TBI
Physical abuse

I guess because I had on a shirt he didn't like. I remember it was something about clothes and he threatened to cut the shirt off my body, and I told him he wasn't cutting the shirt off my body, that I'd go take it off, and then he was going to cut the shirt to shreds, and I told

him no, he wasn't. That I'd take the shirt off but he wasn't cutting the shirt up, and something about the shirt. He didn't like the shirt or something, and he had the scissors and he got mad, and I took the scissors away from him, and that's the only way I'd take off the shirt if he gave me the scissors, and that's when he pounded me in the head.

Physical and financial abuse

Saturday evening, this fellow [name], who I was going to marry, he tore...he gave me a black eye, he tore up my apartment and demanded a $300 check. [This was not the first time this happened]. He'd hit me and stuff like that. I've gone to work with a black eye.

Seeking protection

I went to the police to see what I could do. They told me the temporary restraining order wasn't worth the paper it was written on. They told me basically it was all a joke. I could get it, but he could show up with a gun and blow me away. That if I was going to do anything, I needed to do it and disappear. I needed to go out of state. I needed to file the papers, go out of state, and then not show up until the day of the court date. That I needed to go ahead and get what I needed done, do it fast, and then leave the state of [state name]. I told them I didn't have no money. I didn't have...if I left the state of [state name], how was I going to live? Where was I going to live? How was I going to get there? Due to seizures, I couldn't drive. I didn't have no way of driving. What was the deal? And they said they couldn't help me.

Sexual abuse

I was at a car dealership … getting the car serviced and everything. This elderly man walked in, big smile on, plopped down right next to me, started talking to me very friendly. I started feeling very comfortable with him. Felt like he was like a father figure, you know because my father died when I was...about 5 or 6 years old. Then he started. He put his arm out back behind me. It was a loveseat type thing, which I was feeling very comfortable with him because I was identifying with a father. He started asking questions and so I was talking with him about [the problems he said he was having with his wife and what he could do about them]. And with that he kept getting closer to me… and he moved his hand from the back of the sofa down to the seat and all of a sudden I became aware he was shoving his hand at my butt, up under it and had his thumb stroking my thigh on the outside… my hip area…he was still engaging me in the conversation so that was distracting me…The next thing I know he's got his hand up my short leg, over into my pubic area, probing, massaging, and I'm looking at him. What are you doing? He said…oh, you've just given me the thrill of my life today. And I said remove your hand… I came home rattled…The first thing I did was pick up the phone and I called [name of state] and talked to my friend there and I told him what happened, and I was in hysterics. I mean I was sobbing. I was frantic. I was shaking as I

was holding the phone. It's like I don't understand why do these things keep happening, you know, and we talked about it and that's when I first got the insight. He talked to me. He was friendly. You know, he was gentle. He started off appropriate. He kept me distracted, and he was the perfect predator...I've been in a situation of no control, ... and ... distracted, not really able to anticipate where stuff is going. I'm just trying to deal with each moment, so I mean that's a problem because that means I'm wide open for rape and anything else, and I've been fortunate so far no one's raped me. They've molested me, but they have not raped me.

Sexual abuse by a medical professional

It was the second [gynecological exam] in my whole life... [The doctor] dismissed the nurse and he told me to change into a paper gown and he didn't leave the room....Yeah. And he made me put the thing so it opened in the front..., and then he came over and he pulled the paper open at my breast and everything and he was just looking and his looks were bedroom looks...., and then he took his hands and he started fondling my breasts. After [talking to me about sex and masturbation and touching my private area in a sexual way] ... he put [the speculum] in hot and he said I can sterilize you if you ever tell anybody and besides you've got a brain injury. They're not going to believe you.

Violence as a consequence of TBI

Aggressive behavior

According to Silver et al (2005), aggressive behavior after TBI includes explosive behavior that can be set off by minimal provocation and occur without warning. Episodes range in severity from irritability to outbursts that result in damage to property or assaults on others.

Reports of the incidence of aggression vary widely. Studies of patients with TBI conducted in medical outpatient settings typically report low rates of aggressive behavior (Kreutzer et al, 1999). In contrast, persons in a TBI neurobehavioral program displayed an average of about 280 aggressive acts per day during a 14-day period (Alderman et al, 2002). Sexual aggression was reported in 6.5% of a sample of male patients receiving either inpatient or outpatient TBI rehabilitation; the most common offenses were "touching" offenses followed by exhibitionism and overt sexual aggression (Simpson et al., 1999) Increasing evidence suggests that TBI-related aggressive behavior is strongly associated with depression (Kreutzer et al,1996; Tateno et al, 2003; Baguley et al, 2006).

Case examples

Paul was a new 16 year-old driver when he ran his car off the road and both he and his girlfriend sustained TBIs. After a 2 month coma and years of recovery, his social skills have not caught up with his age of 24. He was taken by police to the emergency room when a group of guys beat him severely and took his wallet. Surprised and humiliated, he responded, "I don't understand. I just asked them 'do you want some of this.' I guess they thought I wanted to fight because they just started beating me up." Now four years later, despite his best intentions, he loses new friends when he throws things and screams obscenities at them. "They are looking at me and talking too loud" he says. "I said I'm sorry, I go too far before I know it."

(Source: Cindi Johnson, Side-by-Side Clubhouse, Atlanta, GA, January, 2007).

After sustaining a brain injury in Iraq, Steve was diagnosed with post-traumatic stress disorder and depression. One of the effects of his brain injury is that he has a harder time keeping his emotions under control. He blurts out what he's thinking or flashes his anger. Late one night driving his pickup truck, he and his wife, came to an intersection where he usually turned left. Now there was a 'No left turn' sign. Confused, he stopped and tried to figure out what to do. A policeman walked up. According to his wife "The cop, he shines the flashlight right in at Steve, and he's screaming, 'Can you not read, stupid?' and he got irate. Steve said to his wife, 'This guy just called me stupid.' He let out the clutch on the truck and yelled at the cop. 'I'll show you stupid, because I'm not stupid. It just takes me longer to comprehend.' " He wanted to get out of the car then, but his wife told him "No, it's not worth it." She calmed him down and the couple drove on. In rehab, Steve is learning strategies to jog his memory and control his anger. He says "I bite my tongue so many times. I--they've taught me to really walk off, and it's a hard thing for me to do, but I'm learning that."

Adapted from National Public Radio report from November 29, 2005: http://www.npr.org/templates/story/story. php?storyId=5030571. Accessed 12/28/07

Reducing the toll of violence after TBI

Victimization

Screening for possible TBI among persons who have experienced intimate partner violence is critical to ensuring that those with TBI-related problems are diagnosed and receive needed services and/or accommodations. Professionals working in IPV prevention can benefit from information and training aimed at helping them identify and manage persons with TBI. Potentially useful methods for screening, identifying and assisting such cases have been proposed by both the Alabama Department of Rehabilitation Services and the Brain Injury Association of Virginia (See Interview with Maria Crowley, this issue, and sidebar of Intimate Partner [Domestic] Violence Resources). Additional research is needed to ensure that the screening methods for identifying TBI are both valid and reliable. The November-

December 2007 issue of the Journal of Head Trauma Rehabilitation, which was devoted to articles about screening and identification of TBI, includes information about promising new screening methods.

Similarly, screening for victimization among persons with TBI is also important. Physicians are especially well-placed to conduct such screening. However, recent studies of the screening practices of physicians, including obstetrician–gynecologists, indicate that most conduct screening for violence only when warning signs are observed (Horan et al., 1998; Rodriguez et al., 1999).

Unfortunately, violence can exist in the absence of warning signs in the patient's behavior or medical history. Women who are victims of violence may not present with symptoms, especially those who experience psychological or emotional abuse. They may conceal what they are experiencing at home. Because of the increased vulnerability of women with disabilities, including those with TBI, it is important to study the utility of screening these patients for IPV.

One of the most widely used screening tools is the Abuse Assessment Screen (McFarlane et al, 1992). This tool is short and has been tested in clinical settings. This and other tools for assessing IPV can be found in the Centers for Disease Control's publication *Intimate Partner Violence and Sexual Violence Victimization Assessment Instruments for Use in Healthcare Settings.* [See Intimate Partner (Domestic) Violence Resources sidebar, page 16.]

Aggressive behavior

The need to improve the effectiveness of strategies to manage the anger, aggression, and disinhibition following TBI has been well established (Corrigan and Bach, 2005). The link between TBIrelated behavioral problems and violent victimization described in this article provides an additional reason why work in this area is vitally important. Improvements in behavioral management techniques might yield benefits beyond achieving reductions in problematic behaviors. This could include reduced risks for the forms of victimization that may accompany diminished coping abilities, impulse control problems, and increased irritability.

Conclusion

Violence as both a cause and a consequence of TBI is a serious problem. TBI professionals can play an important role in educating domestic violence workers, health care providers, and other professionals, including those in law enforcement, about ways to better identify and assist persons who experience violence. Additional research is needed to better quantify the extent of the problem and to ensure that screening methods for identifying a history of TBI are valid and reliable.

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Disclaimer

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

About the Authors

Jean A. Langlois, ScD, MPH is a senior epidemiologist with the Centers for Disease Control and Prevention. She holds master's and doctoral degrees in injury epidemiology and health policy from the Johns Hopkins University School of Hygiene and Public Health. Dr. Langlois worked in pediatric traumatic brain injury rehabilitation at the Kennedy Krieger Institute at Johns Hopkins Hospital, and was a Senior Staff Fellow in epidemiology at the National Institute on Aging of the National Institutes of Health before joining the CDC. She has published numerousarticles and reports on traumatic brain injury, and is considered a national expert on the epidemiology of TBI. In 2006, she was the recipient of the Brain Injury Association of Ohio's Awareness Award, and the North American Brain Injury Society's Public Policy Award

Jeffrey E. Hall, Ph.D., M.S.P.H. is a behavioral scientist with CDC's Division of Violence Prevention. He is a medical sociologist whose research has focused on etiologic aspects of youth violence, elder maltreatment, and violence against women.

Matt Breiding, Ph.D. is a behavioral scientist with CDC's Division of Violence Prevention. He is a psychologist whose research has focused on the topics of intimate partner violence and sexual violence.

Audrey A. Reichard MPH, OTR is an epidemiologist who currently conducts research on occupational injuries at the CDC, National Institute for Occupational Safety and Health, Division of Safety Research. She previously worked in the CDC, National Center for Injury Prevention and Control, Division of Injury Response. Prior to beginning a full-time research position, she practiced as an occupational therapist.

Ms. McDonnell is the Executive Director of the Brain Injury Association of Virginia. She has a Bachelor of Science in Occupational Therapy from the Medical College of Virginia, a postgraduate Certificate in Health Care Management and Administration from Old Dominion University, and a Masters of Public Administration degree from Virginia

Commonwealth University (VCU). Anne has over 20 years of experience in brain injury rehabilitation across a continuum of hospital and community based settings, and has worked as a consultant for state agencies and private service providers. She serves on the advisory boards for the VCU and Ohio Valley Center Traumatic Brain Injury Model Systems grants, and holds a clinical faculty position in the School of Occupational Therapy at VCU.

Marlena Wald, MLS, MPH is an epidemiologist at the National Center for Injury Prevention and Control, CDC. She has a strong interest in research on victimization of persons with TBI and is the developer CDC's fact sheets on this topic and on TBI among prisoners.

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