The Year After: Post-Concussion Syndrome

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This is DT's story. I encouraged her to write of her struggles and eventual recovery from post-concussion syndrome with the hope that other nurses might learn from her expertise as a survivor. I have transcribed DT's thoughts exactly as she has given them to me. I believe it is important to read her words as she meant them.

As nurses, we have the opportunity to intervene with patients and their families in many settings. Hopefully, this story will inspire nurses to make a difference in another's life.

MKB

The Accident

DT: On December 12, 1991, I was involved in a serious automobile accident. I had been Christmas shopping not too far from home. Normally, I am a defensive driver who always pays attention to other drivers. That night, I had my mind on all the Christmas shopping I still had to do. I was stopped at a red light waiting to cross an interstate highway. The light turned green and I proceeded.

The next things I remembered were voices telling me I should stay still, they were going to get me out. I remember kicking my legs and yelling "I can't move." I was upside down in the car and didn't realize it. My left arm was stuck under something which was the car. After the extrication, I asked what happened and was told a semitruck had run a red light, hit the passenger side of my car, thrown it through the air, and it landed with the driver's side down on the ground.

I was taken to the nearest trauma center. I had multiple x-rays, EKG, brain computed tomography scan, and lab work completed. The nurses dressed my lacerations. I was in so much pain, but they didn't want to give me anything because of my concussion. After I was stabilized, they transferred me to the hospital where I worked as an operating room (OR) nurse.

I had quite a few doctors caring for me. There was an internist for my myocardial contusion, a plastic surgeon for multiple lacerations and avulsion of my ear, an orthopod for multiple rib fractures and compression fracture of my thoracic spine, a general surgeon for possible internal injuries, and an otolaryngologist for damage to my hearing. The one specialist I never had was a neurologist or neurosurgeon for my concussion. My head had hit something so hard that the right frontal and left occipitoparietal area of my scalp were completely numb. I don't know how long I lost consciousness, but it was estimated at about 15-20 minutes.

I was released from the hospital in time to go home for Christmas. Six weeks later, I wanted to go back to work. I am an OR nurse responsible for ordering all the orthopedic supplies as well as performing duties as a scrub/circulating nurse.

Our First Encounter

MKB: We met by chance. I was spending a day in the OR/PACU as part of my orientation as the new education instructor for the critical care and surgical areas in the hospital. It was DT's first day back after 6 weeks of medical leave. She told me about her accident and injuries, mentioned being uncon-

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scious after the accident and subsequent hospitalization. I asked DT about the diagnostic evaluation for the minor head injury she had sustained. DT told me the CT scan was negative and nothing more had been done about the concussion.

In our conversation, I mentioned the possibility of experiencing headaches, visual disturbances, difficulty concentrating, depression and mood swings, hearing difficulties—all symptoms of post-concussion syndrome which might appear weeks to months after the injury. I talked briefly about the recovery period following a concussion and suggested DT pace herself at work, get plenty of rest and keep the information on post-concussion syndrome in the back of her mind.

I was concerned about DT as I had developed an awareness of the latent effects of minor head injury while working as a neurosurgical clinician at a trauma center in the Southwest. The trauma and neurological surgeons I collaborated with had relayed several accounts about their post-concussion patients. I had followed many of these patients in the hospital and had made calls to them a few days after discharge. In most cases, recovery seemed uneventful. However, 2-3 months later, the patients or their families called the physicians with a variety of complaints: difficulty concentrating, irritability, problems sleeping, depression, headaches, visual or hearing problems, inability to work, problems in school. The story each patient told was the same; each had a concussion, recovered quickly, went back to work, and then, weeks later, experienced various somatic, cognitive and affective sequelae.

The Struggle

DT: My department manager was very supportive and let me work at my own speed. I couldn't do much except order supplies and relieve a nurse in an "easy" room for a 15 minute break. This really frustrated me because I loved to scrub on orthopedic cases but I wasn't able to scrub on a simple hernia repair. I started to notice my vision was much worse. I couldn't even read our OR schedule but reasoned my age was catching up with me so I bought a pair of reading glasses. I started having problems with sleeping and could only sleep for four hours each night, but I thought it was due to the pain in my body and numbness in my head.

I started getting depressed. It wasn't bad at first, I just felt down. My coworkers noticed it first, then the physicians noticed. I was known at work for being a practical joker. I always laughed and had fun doing whatever I did. The depression continued to get worse. I would cry for no reason at all. I found several excuses for my depression: my father had died a few months before the accident after suffering from cancer; I wasn't getting well as quickly as I wanted; it could be problems with my marriage; or I was worried about my autistic son. I decided I needed to talk to someone so I made an appointment with a psychologist. I told him about all I had been through in the last year and about the accident. He put me on the anti-depressant Prozac (fluoxetine). I took the medication but kept going deeper into depression. When I was at work, I would look for places to hide and cry so no one would see me. Then, it got to the point where I couldn't hide anymore. All I did was cry and I didn't know why I was crying. Before, I always forgot about my problems at work. I loved my work and enjoyed the people I worked with in the OR. We were all good friends who cared about one another. I couldn't laugh anymore.

At home, I just laid on the couch in a fetal position and cried and cried and cried. I wanted to end my life because I couldn't handle this depression anymore. I needed my friends to talk to but I think they were tired of listening to me. I had called them every night since the depression started. Suicide was constantly on my mind. The only thing that kept me from committing suicide was the thought of how I would hurt my kids. I was putting my husband through hell. I told him I wanted a divorce. He didn't deserve what I put him through. I had been short tempered and mean. He had been wonderful since the accident, doing everything around the house and for the kids. He took care of me.

Then, I got to the point where I couldn't handle it anymore. I was at work crying uncontrollably. I felt like I was losing my mind. On that day, I remembered Mary Kay tried to tell me something about what I might go through because of my head injury. I had met her the first day I came back to work. I didn't pay much attention to what she tried telling me because I thought that wasn't going to happen to me. I thought I was different and I would do fine. I, like my physicians, underestimated my head injury. After all, from the time I came to after the accident, I was alert and could answer everyone's questions. The CT scan of the head was negative. I asked to talk to Mary Kay who was our critical care and surgical educator at the hospital.

The Call For Help

MKB: After our brief encounter, I didn't see DT for weeks. Then, one morning approximately six weeks later I received a call in my office. DT was on the phone and in tears. I told her I would come immediately to the OR. I found her in the manager's office crying. I sat down next to DT and listened to her story of the last weeks. DT's experi-

ences and feelings were similar to the experiences of other patients suffering from post-concussion syndrome. I knew she needed assistance. I talked to her for over an hour, then brought her some articles on post-concussion syndrome. We discussed the need for DT to be seen seen immediately by a neurologist or physiatrist, and possibly a neuropsychologist.

Post-Concussion Syndrome

Three months had passed since DT's minor head injury. The symptoms DT was experiencing were characteristic of post-concussion syndrome.

Post-concussion syndrome has been described as a group of symptoms including headache, memory problems, dizziness, loss of taste or smell, weakness, nausea, numbness, diplopia, tinnitus, hearing problems, sleep disturbances, blackout spells, difficulty concentrating, depression, fatigue, difficulty with household chores, and difficulty with social integration.[4-6] Several researchers have examined the sequelae of minor head injury. Barth et al studied 71 patients with minor head injury three months after injury and found some demonstrated neuropsychological dysfunction, cognitive impairment, memory and visuospatial deficits and difficulty returning to work.

According to Levin et al, subacute disturbances of attention, memory and information-processing efficiency are common during the first few days following minor head trauma. Most patients exhibit cognitive recovery one to three months after the injury but a few patients had deficits persisting for a longer duration.[4] For those with persistent deficits, the time of onset for post-concussion symptoms was extremely variable, but generally resolved by one year.[4] In a study by Rimel et al, a large number of patients with minor head injury had difficulties with their lives three months after injury.[5] Headaches and memory deficits were the most common complaints. In the study by Rimel et al, one-third of the patients who were gainfully employed before the injury were unemployed three months later. Other authors have cited similar statistics.

Hamlin believed minor brain injuries "continue to be almost totally ignored" (p. 59)[2] The rationale proposed for lack of awareness was:

- many individuals are not convinced the problems they have are related to the accident
- persons with minor head injury often return to work soon after the accident; therefore, the problems occur in the workplace

Hamlin's statements were true in DT's case. DT did not initially relate her symptoms to head injury, but had identified other reasons for her feelings and symptoms. DT returned to work 6 weeks after her injury. As the symptoms of post-concussion syndrome emerged, DT found herself experiencing these symptoms at work, ultimately affecting her ability to function in a role in which she had been highly competent.

The Slow Recovery

DT: I made an appointment to see a neurologist. The soonest he could see me was one week later. After two days, I couldn't handle the depression and feelings of hopelessness. I called a friend, a general surgeon, and told him I was having problems but didn't have an appointment for another 5 days. He called the neurologist and got me into the office that afternoon. The neurologist gave me a thorough examination. I still had nystagmus which I didn't realize. He listened to me and asked a lot of questions. He told me I was suffering from post-concussion syndrome. The depression, headaches, inability to sleep and my problem with vision were all caused by the "temporary damage" to my brain. He told me the average time for my brain to heal would be a year, that it depended how hard my brain was smacked against the inside of my skull. The neurologist told me to stop taking the Prozac and put me on Elavil (amitriptyline). This drug alters the chemical balance of norepinephrine and serotonin in the brain, thus helping deter the effects of depression. By the end of a week, the depression was pretty much gone. I wasn't back to my old self but at least I wasn't crying all the time.

I wanted to go back to work. My manager and I decided on a four hour/day schedule. Once back to work, I noticed I had other problems. The biggest was short-term memory loss. Someone would tell me something, and by the time I walked to my room I had completely forgotten the message. I had a hard time concentrating. My mind seemed to constantly wander. I would reach for a doorknob and miss it completely.

The hardest thing for me to deal with was that my thought processes were very slow. I had worked in surgery for 20 years. Things came automatically with very little thought. Now, I couldn't even do a simple tonsil or hernia case without having to try to concentrate and remember. Instead of being a few steps ahead of the surgeon, I was a step behind. He'd have to tell me what to do. When I was trying to do paperwork, I would forget what I was supposed to be writing down. I would have to start over multiple times before I would get it right. It was like I was a new employee to the OR instead of someone with 20 years experience. There were times I would get pretty frustrated. I didn't like feeling slow. Sometimes, I would hit myself in the head with my hands trying to make my head work.

I got to the point where I started to deal with it

like I dealt with most things in the past. Humor! I laughed about it and joked about my "brain damage." I told the physicians and nurses everyone had to take a turn working with me. If one of my coworkers told me something that I forgot to pass on, I would tell them that another brain cell had died. I found laughing about it helped me deal with it much better than getting frustrated or feeling sorry for myself.

It has been almost one year since my accident. I am starting to feel and act like my old self again. The improvement in my post-concussion symptoms or problems was gradual. For example, all of a sudden I realized my vision was much better. I could see the OR schedule again. I'm back to scrubbing and being a few steps ahead of the surgeons. I'm finally able to concentrate again. It has been a long year but I was very lucky. I had someone who made me aware of post-concussion syndrome.

Dealing with Post-Concussion Syndrome

MKB: DT did not receive any information on minor head injury or post-concussion syndrome while she was hospitalized. Further, there was no organized program to follow DT after hospitalization. Various programs may be beneficial to individuals who have a minor head injury. Nurses can assist in the recovery process.

Interaction with and teaching patients with concussion and their families must take place while the patient is in the hospital. Printed information on post-concussion syndrome must be given to them. Close follow-up in the outpatient setting is essential. Long and Novack proposed structured recovery programs, matching cognitive capabilities to stress levels in treating post-concussion syndrome.[5] Cognitive effects and stress levels should be evaluated by neuropsychologic and environmental stress assessments. Then, the therapist can equate environmental demands with existing cognitive capabilities, eg, limiting the numbers of activities, or time, or activities at work. Long and Novack believed education of the patient and family is essential. Hinkle describes the content of a brochure on minor head injury in her article.

Levin et al recommended early clinical intervention which would:[4]

- provide information on post-concussion syndrome
- assess the presence of subacute neurobehavioral deficits

Name: _____

Age: _____ Trauma # _____ MR# _____

GCS at scene: _____ GCS on arrival in ER_____

Loss of consciousness: Yes/No Amnesic to event: Yes/No ETOH: _____

CT scan: Yes/No Results of CT scan: _____

GOAT (Galveston Orientation and Amnesic Test): _____

1. Introduce self

2. How are you feeling?_____

Are you back to work/school?_____

If not-why?_____ When will you go back? _____

If yes-Are you having any problems at work/school? _____

What are the problems? _____

3. Occasionally certain symptoms occur after a minor head injury. I'm going to describe some symptoms-answer yes or no if you are experiencing any of these:

Somatic		Cognitive		Affective	
Headache	Y/N	Memory	Y/N	Anxiety	Y/N
Dizziness	Y/N	Difficulty concentrating	Y/N	Depression	Y/N
Decreased energy	Y/N	Difficulty completing tasks	Y/N	Sleep disturbance	Y/N
Vision problem	Y/N	Visuospatial problems	Y/N	Fatigue	Y/N
Weakness	Y/N	Problems with reasoning	Y/N	Easily irritated	Y/N
Nausea	Y/N	Problems with judgment	Y/N	Anger	Y/N
Ringing ears	Y/N	Slowed thinking	Y/N	Problems with initiating activities	Y/N

4. Grade your recovery period from what you were like before the accident to the present (scale 0-10) 0=poor 10=complete recovery

0 1 2 3 4 5 6 7 8 9 10

Follow-up. Send a note with card informing the patient another follow-up call will occur in eight weeks.

Fig 1. Post-concussion screen, phone contact.

- advise patients on a gradual resumption of activities after discharge
- provide a one month follow-up examination

The authors further mentioned that in certain cases more intense supportive counseling and training may be helpful along with follow-up assessment at three months.[4] DT was not referred to a neuropsychologist by the neurologist. Rather, she was followed by the neurologist.

I was involved with the development of a post-concussion program in the Southwest which was established to educate and follow patients sustaining minor head injury. An educational brochure was developed describing concussion and post-concussion syndrome. Trauma and neurological surgeons wrote standing orders for cognitive evaluation by the speech pathologists on any patient sustaining minor head injury. Such an injury was identified by a Glasgow Coma Scale score of 13-15 on admission, suspected or actual loss of consciousness, or diagnosis of concussion. Due to their expertise in cognitive and communication deficits, speech pathologists screened patients initially, and also offered information about post-concussion syndrome. Speech pathologists were also extensively involved with the rehabilitation of all head-injured patients. Attempts were made to screen all patients at 4 weeks and 12 weeks after discharge (Fig 1). The screen was conducted by the speech pathologist or me. If the speech pathologist saw the patient in the hospital, then the speech pathologist would contact the patient by phone at designated intervals to discuss the patient's recovery. If the patient did not see the speech pathologist during the hospital stay, I called the patient to discuss recovery. If a patient was experiencing two or more of the symptoms listed in the screen, the individual was seen by the speech pathologist for a repeat cognitive evaluation. Following the evaluation, the speech pathologist would contact the physiatrist to discuss the results of the evaluation and, if indicated, an appointment was made. Neuropsychological testing was also available. Patients were followed until symptoms resolved and recovery was complete.

The most important tool we have in helping individuals with post-concussion syndrome is education. We must educate physicians, nurses, teachers and employers. A proactive program might minimize the effects of post-concussion syndrome. Outpatient follow-up is most important. Examine your place of employment. Does it have a program to help post-concussion patients? If not, get involved and create one!

Conclusion

My experiences with DT have reinforced a belief I have had regarding my profession. As nurses, we are always in a position to teach. Nursing is part of who I am . . . it is part of all of us. Our practice extends beyond the walls of hospitals, clinics and schools. It is a way of life! We must always take the opportunity to help others . . . our families, friends and peers. A chance meeting, a conversation, a brief encounter can make a difference in a life!

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