Case Report

I hurt so: hypnotic interventions and palliative care for traumatic brain injury

Donald Moss

College of Integrative Medicine and Health Sciences, Saybrook University, Oakland, CA, USA

Correspondence to: Donald Moss, PhD. College of Integrative Medicine and Health Sciences, Saybrook University, 475 14th St., 9th Floor, Oakland, CA 94612, USA. Email: dmoss@saybrook.edu.

Abstract: This article presents a case study in which self-hypnosis, hypnosis-assisted psychotherapy, and palliative care strategies were provided within a multi-modal integrative treatment program for a 38-year-old woman with traumatic brain injury (TBI) secondary to motor vehicle accident. Self-hypnosis was helpful in anxiety reduction and pain management. Hypnosis-assisted psychotherapy was beneficial in de-sensitizing many post-traumatic memories, and in managing post-concussion pain, including neuropathic pain and post-traumatic migraine headaches. A variety of palliative care techniques and spiritual interventions were applied to enhance sleep, moderate cognitive deficits, and enhance quality of life.

Keywords: Traumatic brain injury (TBI); post-traumatic stress disorder; hypnosis; palliative care; spirituality

Submitted Apr 25, 2017. Accepted for publication Aug 18, 2017.
doi: 10.21037/apm.2017.08.16
View this article at: http://dx.doi.org/10.21037/apm.2017.08.16

Neurologically-based conditions

Neurologically-based conditions include seizure disorders, cerebral palsy, multiple sclerosis, Lou Gehrig's disease, Alzheimer's disease, cerebral vascular accidents, traumatic brain injury (TBI), and many other conditions. Most neurologically-based conditions are chronic and debilitating. The degree and specific nature of incapacity is more closely related to the areas of the brain and central nervous system affected and the severity of the damage, than to the medical diagnosis. As the percentage of persons over 65 years of age increases in the North American and world populations, the global burden of neurologically-based conditions will increase sharply. The Family Caregiver Alliance (1) estimated that 1.2 million Americans are diagnosed each year with a neurologically-based condition. The World Health Organization (2) emphasizes that neurologically-based conditions, including both communicable diseases and non-communicable diseases and conditions, present a serious burden of death and disability worldwide, with the level of burden varying across the national income categories. For example, the Disability-Adjusted Life Years (DALY) lost from epilepsy varies from 158.3 DALY lives lost per 100,000 population in the lowest income regions to 51.3 in the highest income regions (2). Affluence in this case leads to more effective identification of cases, more adequate treatment, and reduced disability.

In the majority of cases, neurologically-based disorders become chronic; they cannot be "cured". With growing recognition of the neuroplasticity of the brain and nervous system, the hope for at least partial recovery of function increases. Rehabilitation and management of neurologically-based disorders should begin as soon as possible after the diagnosis of the disorder or condition (2). Palliative care interventions are indicated, to moderate and manage symptoms, reduce patient distress, and enhance quality of life.

TBI

In this article, I present a case narrative of a 38-year old woman with a TBI, based on a motor vehicle accident. The Centers for Disease Control and Prevention has documented a steadily increasing incidence of TBI in the United States, with 2.5 million emergency room visits, hospitalizations, and deaths from TBI in the US in 2010 (3),

and an increase in the incidence of TBI from 2005 to 2014 from 521 to 824 per 100,000 population (4). Motor vehicle accidents contribute heavily to the toll of TBI related injury and disability. Between 2002 and 2010, there was an annual average of 232,240 emergency room visits with TBI-related to motor vehicle accidents and 53,391 hospitalizations for TBI related motor vehicle accidents.

Clinical hypnosis has proven effective in the management of anxiety and pain symptoms in a variety of populations; hypnosis is also effective in the resolution of traumatic memories and post-traumatic symptoms, which frequently accompany TBI. In one recent clinical report, hypnosis was also utilized to facilitate cognitive recovery following brain injury (5). The present article describes the integration of hypnosis and a variety of palliative care strategies into a multi-modal treatment program for a 38-year old woman with TBI secondary to a motor vehicle accident.

Introducing Kay Ellen

At the time of evaluation, Kay Ellen was a 38-year old married mother of two daughters, previously employed as a bookkeeper. Two years previous, she was involved in an automobile accident while driving to an accounting training program for her job. She had worked only briefly since the accident.

Kay Ellen was driving a small SUV, and another driver ran a stop sign and struck her passenger side door, rolling Kay's SUV onto its roof, and throwing her against her car door. Her air bag inflated, protecting her from the windshield. She suffered a concussion from the impact of her skull with the left-side car door. She recalled a sudden impact and shattering glass, and then lost consciousness. She recovered consciousness while EMTs were working to pry open her door and remove her from the upside-down wreckage. She became aware of sharp pains in her left shoulder, arm, and hip, and an aching in her head.

She was hospitalized for evaluation, and underwent extensive X-rays and CT scans while an inpatient. Her X-rays showed cracked ribs but no fractures. Her CT scans showed swelling of the brain in the left frontal, left temporal, and right temporal areas. The consulting neurologist diagnosed post-concussion syndrome with a coup/contrecoup injury from the collision and roll-over, and medicated her with a neuro-modulator, gabapentin.

In the days following the accident, she was concerned most with arm and shoulder pain and the emotional trauma of the accident. As her bruising and muscle pain lessened, she suffered increasing head pain, with migraine features including throbbing pain, nausea with the head pain, and sensitivity to light. She also reported a sharp, deep burning pain in her head that never left. At times, she also experienced an intense burning pain in her right leg and right chest.

She also complained of cognitive deficits, with word-finding problems, some stuttering, poor concentration, and a sense of slowed lethargic thought process. The word-finding difficulties, speech problems, and poor concentration were present daily, but were worse when migraine headaches were present.

Kay Ellen suffered nightmares, often awakening screaming and waving her arms as she re-lived the car rolling, and daytime flashbacks to the accident. She found herself avoiding the intersection where the accident occurred, and at times was reluctant to even drive. She experienced intermittent panic attacks, most often in the car, with rapid heart rate, rapid breathing, and a fear of another driver smashing into her car. Her physician medicated her with an SSRI—escitalopram, for depression and anxiety.

Pathways assessment

Kay Ellen was referred 2 years after the motor vehicle accident for depression, anxiety, and pain management. Her mental status exam at the time of her initial evaluation showed that she was well oriented in time, space, and person, but exhibited difficulty with short term memory, failing to recall three objects, and inability to recall any sequence of numbers exceeding three digits. She also reported short attention span and a clouding of consciousness. She experienced her thinking as dulled and slowed.

Kay Ellen acknowledged severe depression, and reported a sense of loss for her life as it was before the accident. She had returned to work briefly following the accident, but was unable to focus and manage the detailed bookkeeping required in her job. She also felt less of a mother, because she could no longer comprehend her middle school age children's homework and couldn't assist them. She had previously volunteered to direct the middle school math club, and was especially proud of increasing the participation of middle school girls in the club, but now gave that up as well.

She reported that her worst depressive moods came when her head pain and/or right-sided pain were most intense. "*I*

hurt so much," she said repeatedly. She often thought that death would be easier than living with the intensity of her pain.

Psychometric assessment

Kay Ellen completed a Beck Depression Inventory (BDI)) and a Beck Anxiety Inventory (BAI) (6,7). On the BDI she scored 35, indicating severe depression, and endorsed items indicating sadness, discouragement, loss of satisfaction in life, self-hate, self-criticism, crying, poor sleep, fatigue, and thoughts of suicide. On the BAS, she scored 50, indicating severe anxiety. She endorsed items indicating inability to relax, fear of the worst happening, terrified feelings, nervousness, and a host of somatic symptoms associated with anxiety disorders and panic episodes. She scored a 19 on the Tellegen Absorption Scale, indicating that she was likely to be a good candidate for therapeutic application of hypnosis and hypnotic suggestions (8). Finally, she scored a 41 on the Nijmegen Questionnaire, an instrument designed in the Netherlands to identify patients whose symptoms were probably caused or aggravated by maladaptive breathing patterns (9).

Diagnostic assessment

Kay Ellen met the criteria for medical diagnoses of post-concussion syndrome with head pain, neuropathic right sided pain, and intermittent migraine headache. The left sided brain swelling and bruising coincided with Broca's area in the brain, and probably explained the speech problems. She fit the psychiatric diagnoses of post-traumatic stress disorder and Major Depression, with anxious distress. She showed significant anxiety, but her anxiety episodes seemed post-traumatic in character, and no separate anxiety disorder diagnosis was assigned.

Neurophysiology

As part of her assessment, Kay Ellen submitted to a quantitative electroencephalogram (QEEG), using the Neuroguide® norms. The QEEG showed an excess of slow wave (Delta and Theta) EEG activity over both hemispheres, specifically in the left frontal, left temporal, right temporal, and occipital areas. The underactive left temporal area included Broca's area (the Brodmann areas 44 and 45, essential for productive speech). There were also smaller areas of elevated high Beta, in the left and right temporal areas and along the mid-line, over the Anterior Cingulate Cortex, a pattern which frequently contributes to heightened anxiety.

Lifestyle assessment

Following the accident, Kay Ellen reported unsteadiness in her gait, and found that walking aggravated her head pain. She gradually gave up most activity, spending much of the day and night in a reclining chair with the lights turned off and curtains pinned closed to shut out sunlight. She claimed that she had lost her appetite as well, and ate sparingly, but had gained 25 pounds since the automobile accident. Kay Ellen's sleep cycle was severely disturbed. Since she kept herself in near total darkness day and night, and watched movies on the television intermittently around the clock, she was often confused as to whether it was day or night. She slept erratically for only brief periods.

Readiness for change

Kay Ellen was desperate for any intervention that would relieve pain or moderate her anxiety. However, her depression was so severe, that she had little hope that action on her part would cause improvement. She accepted the referral for behaviorally-based treatment, but simultaneously she had requested her spouse to investigate deep brain stimulation and neuro-surgery. She agreed to cooperate with the Pathways team's recommendations, yet expressed hopelessness. It remained difficult for her to believe that she could help herself.

Pathways treatment

Following the Pathways Model (10), Kay Ellen's treatment was organized into three levels: (I) pathways level 1 focuses on self-directed changes in everyday behaviors and lifestyle that are designed to re-establish normal body rhythms; (II) pathways level 2 focuses on the individual learning self-regulation skills, and utilizing community resources and educational materials to support learning and lifestyle changes; (III) pathways level 3 involves professional interventions, the utilization of services provided by a health practitioner, such as hypnosis, energy therapy, psychotherapy, acupuncture, or medication management.

Level 1 activity: *mindful breathing practice*

Kay Ellen wanted to focus her treatment initially on her

post-traumatic stress symptoms, anxiety, and head pain. Given her high score on the Nijmegen questionnaire, and her pervasive anxiety, her pathways health coach suggested that she adopt paced mindful breathing as her initial level 1 activity. She was aware of rapid and irregular breathing during her anxiety attacks, and accepted this suggestion. Her health coach taught her to pace her breathing using a breathing app on her smart phone (Breathe2Relax, developed by the National Center for Telehealth and Technology) and showed her how to monitor her breathing using one hand on her chest and one on her abdomen to increase her awareness of her breathing. She learned to breathe gently, slowly, and fully, at a pace of about six breaths per minute.

Level 1 activity: *sleep hygiene*

Kay Ellen agreed to a goal of restoring a diurnal cycle to her sleep and waking. She experimented with opening the curtains in the room where she sat, and wore sunglasses to cope with her light sensitivity. She also began lying down in the bedroom between 10 and 11 PM, and forced herself to get up at 7 AM, to see her daughters before they left for school. She also consented to sit in the shade on her patio, whenever the outdoor temperature was warm enough, again wearing sunglasses and a hat.

Level 1 progress

Kay Ellen experienced the mindful breathing as soothing and calming. She experienced a lessening of her stress and anxiety when she engaged in her breathing practices. However, an intense panic attack occurred while driving, only 5 minutes after engaging in her breath practices, which was very discouraging. When another panic attack happened while driving, she pulled over safely to the side of the road, started the breath pacer on her phone, and slowed her breathing. This time her panic abated and she was able to drive home. She was encouraged by this success.

Restoration of Kay Ellen's sleep cycle was more challenging. She made herself lie down at bedtime, but sleep eluded her. She was encouraged to use some behavioral sleep aids to enhance sleep onset. First, she used a white noise device simulating falling water, to create a steady soothing background and shut out environmental noise. Second, she utilized an audio-visual entrainment (AVE) device, basically a headset and a set of LED goggles delivering sound and light at a rate gradually ramping down from 8 to 2 Hertz, to entrain her brain to Delta range sleep rhythms. Possible adverse effects of audio visual entrainment were discussed with the patient. Strobe lights can trigger onset of migraine or seizure, usually at faster frequencies. The patient agreed to trials of the AVE device in the office. In her case neither the protocol for sleep onset nor the protocol used later in her treatment for daytime alertness triggered any adverse effects. (The device used was a David Paradise® device, from Mind Alive, Ltd., in Calgary, Alberta, Canada). Tang *et al.* (11,12) have documented the effectiveness of AVE in improving sleep. Sleep diary data in their studies showed faster sleep latency and reduced awakenings.

Using white noise and AVE Kay Ellen slowly made progress in falling asleep more rapidly—in about 25 to 35 minutes. She still reported fragmented sleep, and daytime sleepiness, but the hours of nighttime sleeping gradually increased. She was also instructed to use the AVE device when she awakened in the night as well, and this gave her additional hours of sleep.

Pathways level 2 pathways activities

Level 2 in the Pathways Model involves the acquisition of coping skills and self-regulation skills and the use of community resources and educational materials for better coping.

Level 2 activity: *self-hypnosis*

Kay Ellen expressed fascination with hypnosis, and her psychologist suggested she begin with home practice of calming self-hypnosis exercises. In the office, Kay Ellen showed above average hypnotic ability, responding positively to suggestions of arm heaviness and arm levitation. She learned to use eye fixation, slowed breathing, and a descending staircase image to induce trance, and accepted suggestions of a calm scene to calm her emotions and quiet her mind. She also learned a self-hypnosis exercise in dissociation, to enter trance and then picture herself across the room from her body. She learned to disengage herself mentally from the pain, experiencing it as distant.

Level 2 activity: *aquatherapy*

Because Kay Ellen suffered pain much of each day, and the pain seemed to be aggravated by activity, she was resistant to increasing movement. She reluctantly agreed to a trial with aquatherapy, gentle graded activity in a warm-water

therapeutic pool, so was referred to a program operated by a physical therapy (PT) clinic. The PTs conducted an initial evaluation, found several patterns of muscular bracing and tensing, and assigned her to their gentlest program of in-pool activity, a class composed primarily of men and women with severe rheumatoid arthritis. Kay Ellen found the 94-degree F pool water soothing, and initially enjoyed lolling in the pool. Gradually she was encouraged to join in some gentle movements with the class.

Level 2 activity: prayer

Kay Ellen's spouse Richard asked her psychologist whether healing prayer could help her mood and hopelessness. He explained that she had been a devout Catholic, who had regularly participated in a Bible study group and in a healing prayer circle that seemed to benefit several women with serious medical and emotional conditions. Since her accident, however, she had lost hope and refused to engage in prayer. When the psychologist spoke with Kay Ellen, she burst into tears, and expressed a wish that the women from the prayer circle would pray over her. Richard made contact with the group facilitator, and a meeting was set up for the circle to pray with Kay Ellen at her home.

Level 2 progress

Kay Ellen reported that she was much calmer and less anxious with the combination of paced mindful breathing and self-hypnosis. On days of extreme tension and anxiety she was able to achieve a relaxed state, even if for a short time. She found the breathing to be her first response to any anxiety, because she was able to slow her breathing even when driving or in public. She still reported flashbacks to the accident, and it took her longer to calm at those times, but her breath practices at least reduced the intensity of the anxiety. When she took the time to sit quietly and do her self-hypnosis exercises, the process calmed her deeply.

She reported after 4 weeks of self-hypnosis that she was suffering less with her deep burning pain in the head and the right-sided leg and chest pain. When she mentally disconnected from her body in her self-induced trance, she experienced the pain as distant and weaker. Kay Ellen reported that her migraine headaches continued, but were now less frequent (down from four times weekly to one to two times weekly).

Kay Ellen gradually increased her movement in the aquatherapy classes. She reported that she felt less "twisted" in her body, and the physical therapist supervising her participation reported less muscular bracing.

Kay Ellen's prayer circle visited her four times in the month after her husband relayed her request. Each time they began by "praying over her"—praying for healing. Two of the group members felt spiritually moved and prayed in tongues over her. Then they invited her to pray with them for herself and others. She felt cared for and supported in these sessions, and the prayer sessions lifted her mood. On one occasion, she suffered a severe migraine headache with onset an hour before the prayer session, but she decided not to cancel the group. She experienced a spontaneous lessening of the migraine pain during the prayer. She was afraid to feel hopeful, yet experienced a further lessening of the intensity and frequency of the headaches in the coming weeks. The prayer visits also led to telephone contact with three of the group members, who had felt shut out by Kay Ellen's not returning their phone calls in the months after the accident.

Kay Ellen was encouraged that she was at least "moving in the right direction". She reported her depression was more moderate; her days dominated by discomfort and distress were fewer.

Pathways level 3 treatments

Level 3 in the Pathways Model consists of professional treatment interventions. In Kay Ellen's case the treatment interventions were palliative, aiming to reduce both the symptoms and her distress secondary to the TBI.

Level 3 treatment: clinical hypnosis

Kay Ellen had responded positively to self-hypnosis, with both calming and reduction in pain intensity. She eagerly consented to a series of psychotherapy sessions focused on hypnosis both for pain and traumatic memories of the accident. Her psychologist began doing a hypnosis induction at the beginning of each session. Kay Ellen entered hypnosis easily and responded positively to suggestions to deepen her hypnotic state.

Hypnosis for traumatic memories

Kay Ellen's psychologist initially focused the hypnotically-assisted psychotherapy on revisiting the accident scene, and helping her to face each phase of the accident, the moment when the other car was racing toward her passenger door, the impact which she so frequently re-lived in nightmares,

and the minutes in which she hung from the seat belt upside down in her overturned car. He invited Kay Ellen to see herself from a distance, then to approach more closely, and then to see the accident in slow motion. Whenever she grew agitated he invited her to withdraw to her safe place and recover an inward calm and strength.

Next he guided Kay Ellen into the future, in an age progression, to join herself on a balmy tropical beach where she is celebrating progress in her healing. Kay Ellen saw herself walking steadily into the warm salty water, and then lying on the beach soaking up the sun. She spoke quietly through this age progression, inviting her sunning future self to describe some of her struggles and some of her progress.

Hypnosis for pain management

Next, Kay Ellen's psychologist guided her through a series of hypnotic exercises to transform her sensory experience of her pain, changing its shape, its color, moving it from right side to left, from deep in her head to her foot, and shrinking the pain to a small capsule in her toenail. Finally, he used a "glove anesthesia" script, to create a tingling numbness throughout Kay Ellen's left hand, and then suggested that wherever and whenever she touched herself with this numb, glove-like hand, and said the word "tingle", that body area touched would also become numb and tingly (13,14).

Level 3 treatment*: *neurofeedback

Given the baseline QEEG readings, and the pattern of cognitive deficits, Kay Ellen appeared to be a good candidate for neurofeedback (EEG biofeedback) to modify cortical activation patterns, and hopefully to moderate both cognitive deficits and centrally mediated pain. A growing number of researchers have documented the efficacy of neurofeedback for addressing pain and cognitive deficits in TBI (15-17). Unfortunately, the case manager managing her auto insurance benefits absolutely refused any payments for neurofeedback. She was also eligible for some worker's compensation benefits for services not covered by auto insurance, but the worker's compensation office also refused to pay for neurofeedback. An attempt was made to negotiate a reduced fee for neurofeedback but the family's resources had been severely strained, and they declined to pay even a token amount for any services not covered by insurance.

Instead, Kay Ellen's therapist suggested using AVE to modify daytime cortical rhythms. Kay Ellen had utilized AVE at home for sleep onset, with substantial benefit. AVE is also often effective in inducing faster attention-enhancing cortical patterns in inattentive persons, but unlike neurofeedback the effect is generally time limited, so the AVE device must continue to be used daily for any effects.

Level 3 treatment*: *AVE

Kay Ellen continued to experience cognitive deficits including a lack of mental sharpness and a kind of cognitive fog. Kay Ellen's psychotherapist taught her to select a daytime AVE protocol with a much higher target rate, about 15 Hertz, to entrain her brain to a dominant Beta rhythm. In the office, this AVE protocol produced a moderately more awake and alert state, with noticeably sharper thinking. Kay Ellen decided to use the AVE each morning and early afternoon, to enhance her daytime alertness and attentiveness.

Level 3 treatment*: *spiritual counseling

Kay Ellen's sessions with her prayer circle rekindled her desire for a spiritual recovery. She was ashamed at how she had cut herself off from her church and prayer, and become so cynical about any spiritual help. She wanted to speak with a priest or minister, but not her own pastor, who she saw as a parrot mouthing empty formulas. One of the women in her prayer circle introduced her to a Franciscan monk, who was a spiritual guide at a retreat center 30 minutes from Kay Ellen's home. She began to meet with him whenever she was able to arrange a ride to the retreat center.

Level 3 progress

Kay Ellen almost always responded positively to hypnotic induction. She found the hypnotic sessions consistently soothing and calming. Her response to the various hypnotic scripts and suggestions varied greatly. She found herself less frequently troubled by flashbacks and nightmares, as the hypnotic regressions to the accident served to de-sensitize her reactions to the accident scene. She also felt bolstered by the hypnotic visit to her vacationing future self**,** and set herself the goal to plan a tropical vacation with her husband within a year. She returned from that hypnotic age progression hearing her own words from the future saying to herself: "*breathe*, *pray*, *and use trance*."

Kay Ellen found little initial effect in the hypnotic suggestions to change the sensory aspect of her pain. Even

when she visualized the pain shrunken down to a tiny space within her toenail that tiny space hurt so intensely she wanted to cut off her toe. The glove anesthesia surprised her however. She could tangibly feel her left hand becoming numb and tingly, and losing its fleshy substance, feeling like gauzy, cottony fluff. Then when she touched her aching right leg, the numbing, cottony, glove-like sensations began to spread through her leg. Kay Ellen decided to use this strategy and numb her leg and chest before her aquatherapy class. This enabled her to increase her activity further in the class.

Kay Ellen plunged into anger and discouragement at her insurance companies' refusal to pay for neurofeedback treatment. She was assured that at least some of the potential benefit of neurofeedback could probably be accomplished by audio visual entrainment.

Kay Ellen experienced a moderate clearing of her thought processes and enhanced alertness initially with AVE. With daily repetition of the AVE sessions, she reported occasional days when she felt more like "herself" mentally. She did not feel ready to take on heavy accounting tasks or head the math club, yet she found herself better able to plan some of the meals for her family, and prepare a shopping list.

Kay Ellen found her spiritual counseling sessions helpful in coping with her changed life. She decided to use the Franciscan brother as a spiritual director for the next phase of her recovery. He taught her to pray in new ways, with simple meditations, and biblical imagery exercises. In one of her visualizations, she imagined the biblical figure Job, who had suffered the loss of his health, family, and wealth, holding her hand and encouraging her (18). She felt a strange validation in this visualization, that someone whose name had become synonymous with suffering could acknowledge her suffering. In another visualization, she pictured herself as the woman described in the books of Mark (19) and Luke (20), who touched Christ's cloak, and felt healing power go into her.

Kay Ellen felt positive effects both in mood and in concentration with the meditation and imagery. Her spiritual guide also recommended books about meditation and spiritual practices, and she found herself able to concentrate on reading more than at any time since the accident.

Discussion: life with a damaged brain

Kay Ellen continued to suffer pain, anxiety, and cognitive deficits. She experienced a variety of palliative effects from her self-regulation activities and her new spiritual practices, yet her brain was still damaged. She was not able to resume her work as a bookkeeper, nor to ride bicycles with her daughters. However, she now was awake most days, shared breakfast with the daughters, and resumed much of the meal preparation for her family. She and her husband set up a vacation fund, and began to plan for a trip to the beach sometime in the coming year.

She continued to utilize breathing practices, self-hypnosis, and a variety of visual images for calming and pain relief daily. She drove her car more freely now, with less anxiety, and regularly passed through the intersection where her accident had occurred. She "strobed herself" to sleep with slow frequency Delta range AVE and strobed herself into greater alertness with low Beta range fast frequency AVE. When the battery failed in her AVE device, and it took her 2 days to replace it, she realized the difference this device was making: She was less mentally clear during the day, and found sleep onset more difficult at night, until she replaced the battery.

Kay Ellen continued in her aquatherapy class, now paying for her sessions, as part of her own ongoing health maintenance program. Spiritually, she felt awake and alive again. She began to search for a pathway of community service for herself, visiting a rehabilitation center and encouraging some of the women with TBI in their recovery processes.

She continued to suffer occasional episodes of depression and bitterness at the loss of her former life. She found that she could manage the intensity of depression now both with her self-regulation skills (breathing, hypnosis, and spiritual practices), and contact with her prayer circle (the group offered her "prn prayer sessions" on 24-hour' notice). In most cases the prayer circles nudged her mood at least partially out of the darkness.

Kay Ellen was offered the option to schedule hypnosis sessions and sessions to refresh her breathing skills as needed. Her spiritual guide continued to provide intermittent guidance about every 4 months. Initially, she felt some shame and embarrassment at the idea of ongoing psychological and pastoral support, until her therapist reminded her that TBI is a chronic condition like heart disease and diabetes that requires monitoring, support, and intermittent interventions.

Acknowledgements

None.

Footnote

Conflicts of Interest: The author has no conflicts of interest to declare.

Informed Consent: Written informed consent was obtained from the patient for publication of this manuscript.

References

1. Family Caregiver Alliance. Incidence and Prevalence of the Major Causes of Brain Impairment Available online: https://www.caregiver.org/incidence-and-prevalence-major-causes-brain-impairment
2. World Health Organization. Neurological disorders: public health challenges. Available online: http://www.who.int/mental_health/neurology/neurological_disorders_report_web.pdf
3. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Division of Unintentional Injury Prevention. Report to Congress on traumatic brain injury in the United States: epidemiology and rehabilitation. Available online: https://www.cdc.gov/traumaticbraininjury/pdf/tbi_report_to_congress_epi_and_rehab-a.pdf
4. Centers for Disease Control and Prevention. Rates of TBI-related Emergency Department Visits, Hospitalizations, and Deaths — United States, 2001–2010. Available online: https://www.cdc.gov/traumaticbraininjury/data/rates.html
5. Vanhaudenhuyse A, Laureys S, Faymonville ME. The use of hypnosis in severe brain injury rehabilitation: a case report. Acta Neurol Belg 2015;115:771-2.
6. Beck AT, Beamesderfer A. Assessment of depression: the depression inventory. Mod Probl Pharmacopsychiatry 1974;7:151-69.
7. Fydrich T, Dowdall D, Chambless DL. Reliability and validity of the Beck Anxiety Inventory. J Anxiety Disord 1992;6:55-61.
8. Tellegen A, Atkinson G. Openness to absorbing and self-altering experiences ("absorption"), a trait related to hypnotic susceptibility. J Abnorm Psychol 1974;83:268-77.
9. van Dixhoorn J, Duivenvoorden HJ. Efficacy of Nijmegen Questionnaire in recognition of the hyperventilation syndrome. J Psychosom Res 1985;29:199-206.
10. McGrady A, Moss D. Pathways to illness, pathways to health. New York: Springer, 2013:282.
11. Tang HY, Vitiello MV, Perlis M, et al. A pilot study of audio-visual stimulation as a self-care treatment for insomnia in adults with insomnia and chronic pain. Appl Psychophysiol Biofeedback 2014;39:219-25.
12. Tang HY, Riegel B, McCurry SM, et al. Open-Loop Audio-Visual Stimulation (AVS): A Useful Tool for Management of Insomnia? Appl Psychophysiol Biofeedback 2016;41:39-46.
13. Crasilneck HB, Hall JA. Clinical hypnosis: principles and applications. 2nd edition. Orlando: Grune & Stratto, 1985:486.
14. Yapko MD. Trancework: an introduction to the practice of clinical hypnosis. 4th edition. New York: Routledge, 2012:664.
15. Ayers ME. Assessing and treating open head trauma, coma, and stroke using real-time digital EEG neurofeedback. In: Evans JR, Abarbanel A (eds). Introduction to quantitative EEG and neurofeedback. New York: Academic Press, 1999:203-22.
16. Thomas JL, Smith ML. Neurofeedback for traumatic brain injury: current trends. Biofeedback 2015;43:31-7.
17. Thornton KE, Carmody DP. Efficacy of traumatic brain injury rehabilitation: interventions of QEEG-guided biofeedback, computers, strategies, and medications. Appl Psychophysiol Biofeedback 2008;33:101-24.
18. Job 1 - New International Version (NIV). Available online: https://www.biblica.com/bible/niv/job/1/
19. Mark 5 - New International Version (NIV). Available online: https://www.biblica.com/bible/niv/mark/5/
20. Luke 8 - New International Version (NIV). Available online: https://www.biblica.com/bible/niv/luke/8/

Cite this article as: Moss D. I hurt so: hypnotic interventions and palliative care for traumatic brain injury. Ann Palliat Med 2018;7(1):151-158. doi: 10.21037/apm.2017.08.16