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TRIAL

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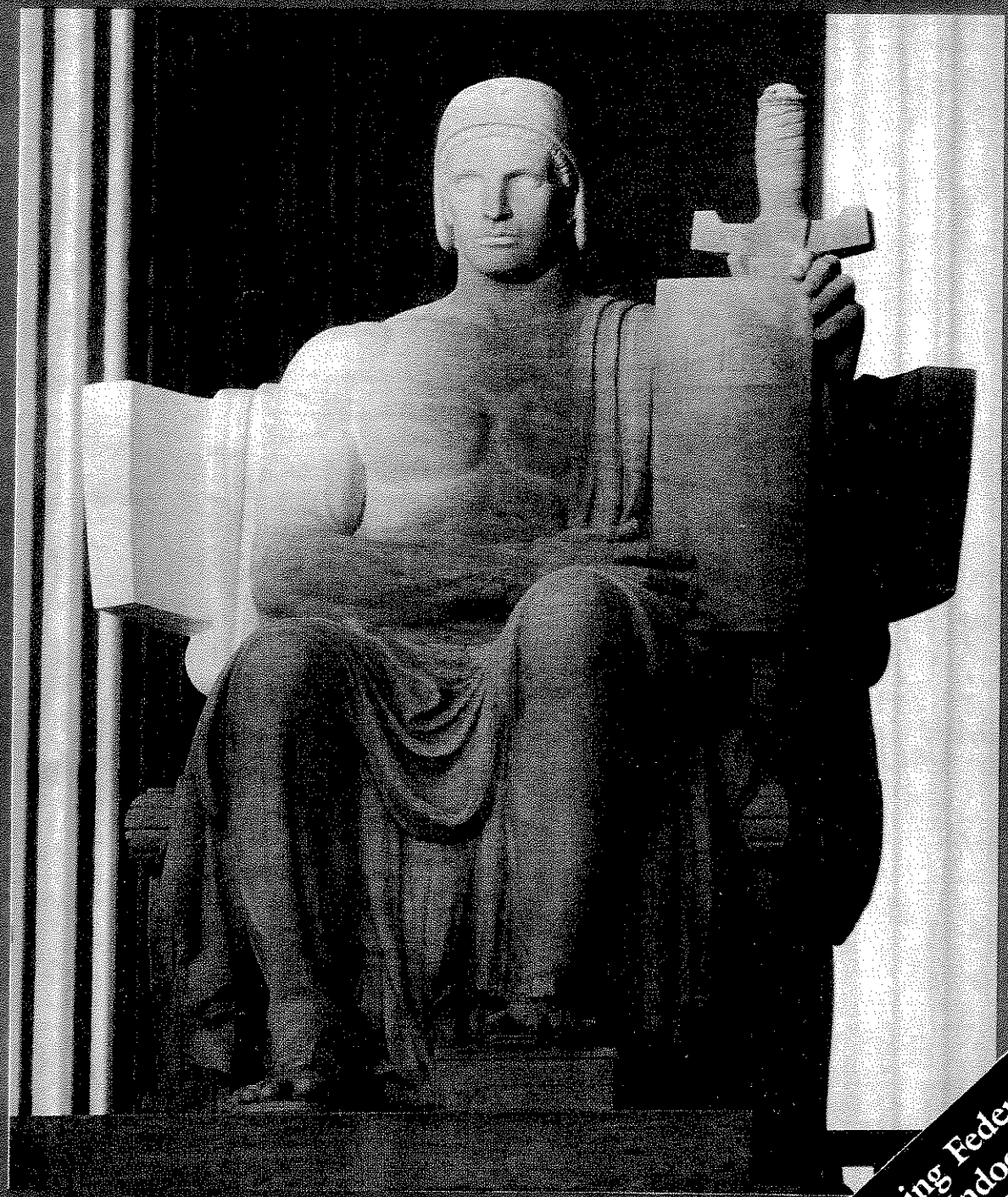

- Impeaching Federal Judges
- Danger: Indoor Tanning
- Brain Injuries

Mild to Moderate Brain Injury

A Silent Epidemic

E. Marcus Davis

A third-year law student's car is rear-ended by a tractor-trailer truck. The student experiences a brief period of dizziness, overwhelming fatigue, and vision problems. The student later finds that he cannot concentrate or retain information from his case books. He begins to experience mood swings and depression.

- During a car collision, a 62-year-old sculptor hits her head on the car roof. She later finds that she can no longer conceptualize or finish a sculpture.
- In a head-on collision, a bartender is thrown against the dashboard. He sustains facial bone fractures and loses consciousness. Later he discovers that he cannot remember patrons' drink orders, although before the collision he had been able to keep track of 20 at a time.
- Another auto accident victim, a 25-year-old computer programmer, now finds that she gets lost driving to work. She can no longer do her job without making lists of every task to be completed and taking notes on every conversation she has. She begins to have heated arguments with her husband.

The personal injury lawyer who has had no prior experience with head-injury cases might dismiss the vague, seemingly unrelated symptoms in any one of these cases as the complaints of a hypochondriac. That lawyer could easily focus only on a soft-tissue neck-injury claim and miss the much more important brain-injury claim.

Plaintiffs' lawyers are well aware of the epidemic of orthopedic injuries (fractures) and soft-tissue injuries (torn or bruised ligaments, muscles, and nerves) caused by accidents involving transportation vehicles, construction equipment, or falls. Both types of anatomical damage can easily be recognized and diagnosed, often by a lay person. But mild to moderate brain damage associated with the same accidents frequently goes undiagnosed even by medical experts.

Each year, head injuries cause 100,000 deaths in this country, and an estimated 1.5 million Americans sustain head injuries that require medical attention. Roughly half these are minor and do not require hospitalization. The other half involve moderate to severe brain injury. Each year, 700,000 people with head injuries are admitted to hospitals. Each year, between 50,000 and 90,000 of them are unable to resume normal life.[1] In 1983, more than $10.5 billion was spent on the care, treatment, and rehabilitation of people who have suffered head injuries.[2]

An even larger number of brain-injured people are undiagnosed. They may be seen in emergency rooms by doctors who tell them that they will recover from brain-trauma-related complaints —or they may never get medical attention. Thus, these people may not realize that they have sustained brain injuries and that their ensuing cognitive problems are real and have a definite cause. They are the victims of what experts call "a silent epidemic."[3]

Many of them will seek legal counsel to obtain compensation for more obvious but far less significant injuries, such as fractures or cervical strain or sprain. Personal injury lawyers who recognize signs of brain injury can provide invaluable assistance to these clients by referring them to medical care providers skilled in the diagnosis and treatment of mild to moderate brain injuries. Getting them medical help is a satisfying adjunct to fulfilling the more traditional lawyer's role of helping them obtain full and fair compensation for all their injuries—head injuries included.

Signs of Damage

Brain injury causes physical, cognitive, and psychosocial impairment. Physical

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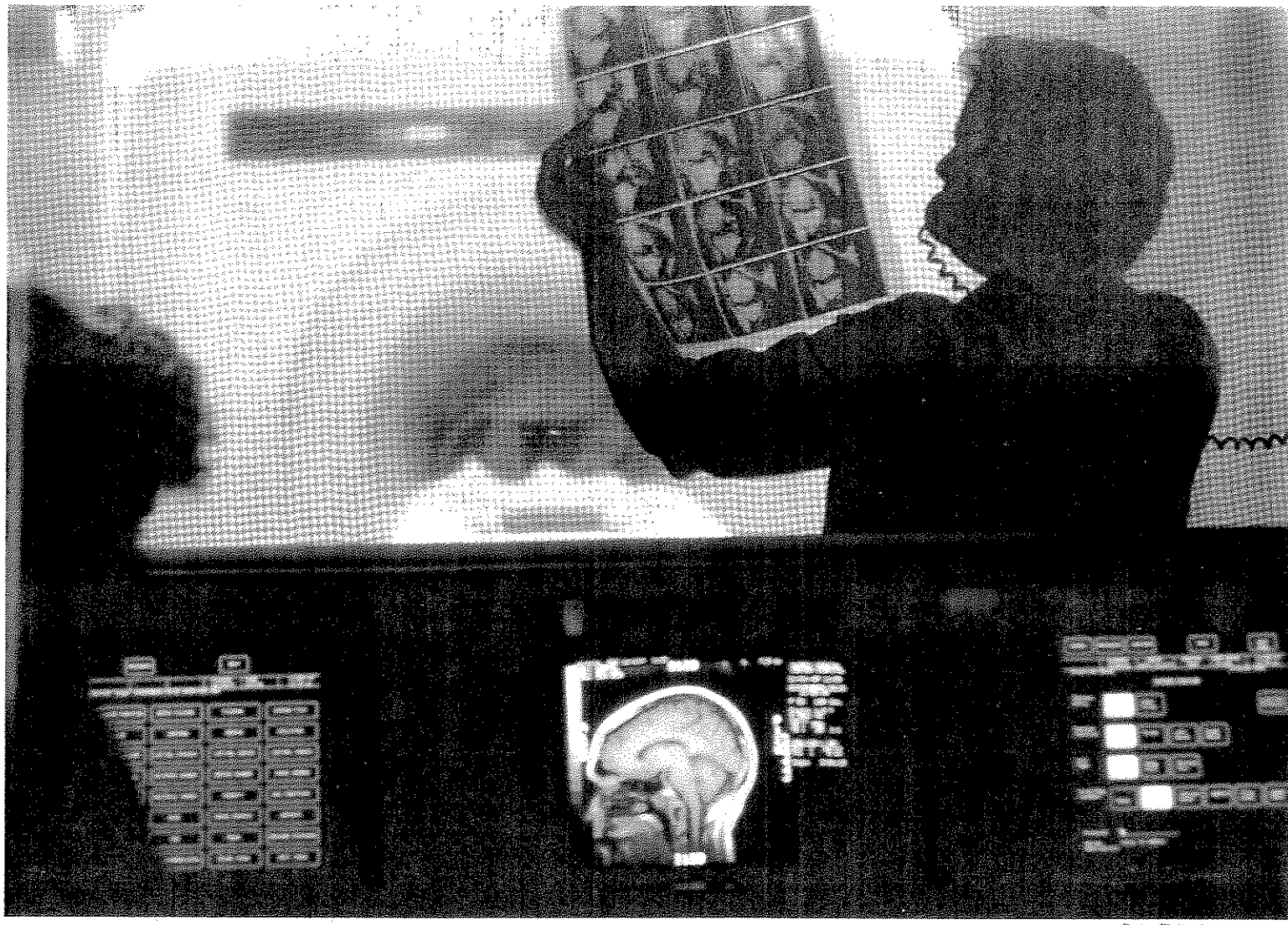

Roger Tully, Inc.

effects can include headaches; lack of coordination; muscle spasticity; paralysis; seizures; and speech, hearing, vision, tactile, and olfactory dysfunction. On a cognitive level, there may be memory deficits; concentration problems; slowed thinking; and problems with perception, sequencing, judgment, and communication, including impaired reading and writing skills. Possible psychosocial consequences include behavioral and emotional dysfunction; fatigue; loss of empathy; depression; anxiety; sexual dysfunction; lack of motivation; and emotional lability (volatility), including excessive laughing or a general difficulty in relating to others.

Many personal injury attorneys have accident-victim clients who complain of problems with organizing their thoughts, keeping track of things, selecting the right word in speaking, doing their jobs as well as before, getting along with family and friends, learning new things or retaining information, or finding their way from place to place. They may complain of headaches, dizziness, double vision, hypersensitivity to light or sound, or fear and confusion when in crowds. Many of these symptoms come under the diagnostic catch-all of "post-concussion syndrome." Their presence makes it likely that a brain injury evaluation will prove fruitful.[4]

Brain injury can be present in a person who never lost consciousness.[5] In such cases, the alteration of consciousness caused by the blow to the head may have taken the form of a period of feeling dazed, confused, or agitated.[6] The client who did not lose consciousness is less likely to have had the brain injury correctly diagnosed. This person will suffer severely because no one recognized that there is a physical basis for the deficits.

People with mild to moderate brain injury are beset by residual problems that usually escape detection in ordinary medical examinations. Because these problems are undefined or improperly defined, they become more frightening and debilitating.[7] These victims may simply decide that they are going crazy for reasons unrelated to the original trauma. Often they are misunderstood by their families, co-workers, and communities. Often they are accused of malingering.

Mechanics of Damage

How can a client have brain damage without having sustained a skull fracture, coma, or loss of consciousness? It is important to know some basic facts about brain anatomy in order to understand this type of injury.

The brain lacks rigidity and strength, and is easily crushed or torn. Brain tissue is made up of billions of fine thread-like nerve fibers. It has the consistency of oatmeal or gelatin. The brain is protected externally by the rigid skull and internally by a cushioning bath of cerebrospinal fluid, which surrounds it and in which it floats. Most of this fluid is between the brain and the skull; the rest is in the ventricles (natural cavities in the brain).

The skull offers considerable protection because of its strength, but it does not protect perfectly due to its inner contours. The skull's interior is not smooth, but characterized by sharp,

bony protuberances. When something hits the head, the brain may be flung against these protuberances and torn or bruised.

Much of the early research on the type and location of damage to the brain that results from its movement within the skull was conducted by a physicist, A.H.S. Holbourn, during the mid-1940s.[8] Using gelatin models of the brain encased in a skull, Holbourn delivered blows of measured intensity to specific points on the skull. He reported that the irregularities in the internal contour of the skull—its ridges and dural partitions—play a decisive role in determining the distribution of forces on the brain resulting from blows to the head. As the brain is moved within the skull, the tips of the frontal and temporal lobes are especially vulnerable to bruising due to their location within the skull.

Holbourn found the shearing effect caused by sliding brain tissue over bone to be responsible for much of the localized damage that occurs in both closed and open head injuries. When external forces cause rotational movement of the brain, as in a severe whiplash, widespread damage can also result.[9]

U.S. government studies further documented such injuries in experiments with rhesus monkeys.[10] The monkeys were placed in an automobile that was subjected to rapid acceleration and deceleration forces. The monkeys' brains were later dissected to determine the extent of the injuries. In evaluating rotational and translational rigid body motions of the head after impact, this study proved that concussion, visible hemorrhages, and contusions of the brain surface can be produced without direct head impact.

In trauma to the brain, rotational and shearing effects may also cause injury to the blood vessels (bruising). When the blood supply carried by capillaries to brain tissue is obstructed by injury, the brain cells are deprived of nourishment and die. In addition, coup contra coup injuries can occur when the brain bounces off one side of the skull's interior and then strikes the opposite side—even without a blow to the head.

Control of different physical functions and mental operations may be quite localized. Injuries to small areas of the brain may have very specific and limited effects, while larger injuries affect more functions. The forebrain or frontal lobes control many intellectual abilities.

Injuries to the frontal lobes are specifically associated with poor judgment of the consequences of one's actions; difficulties in planning, sequencing, and decision making; diminished awareness of social propriety; and loss of inhibition. The frontal lobes organize and regulate behavior necessary for accomplishment. They are critical to the "executive functions"—anticipating, selecting goals, self-monitoring, using feedback, and completing purposeful activities.

The frontal lobes coordinate attention, memory, language, perception, motor functions, and social behavior. When their function is impaired, all other cognitive systems—even those that remain individually intact—are affected. People with frontal-lobe injuries may appear to lose all ambition. They may have trouble starting routine tasks; following a sequence of directions; and maintaining attention to tasks or situations that involve judgment, social reasoning, and inventive problem solving.

An estimated 1.5 million Americans every year sustain head injuries that require medical attention.

The brain is also divided into right and left hemispheres, each with specialized functions. Injury to the left hemisphere can cause difficulty with language, verbal and nonverbal communication, logic, calculation, and moods. It can also cause right visual-field neglect—impaired ability to register or process information from the right eye, even if the eye itself is undamaged. With damage to the right hemisphere, the injured person may experience poor vigilance, scanning and spatial-orientation problems, indifference and apathy, loss of inhibition, or left visual-field neglect.

Temporal-lobe damage diminishes the ability to recognize, process, and remember information that is heard—words, voices, and numbers. The injured person may also suffer from sound discrimination problems, temporal-lobe epilepsy, or language disturbance.[11]

Detecting Damage

The diagnosis and evaluation of mild to moderate brain damage require special training and specialized diagnostic tools. Counsel should not rule out a possible brain injury simply because a neurologist, a neurosurgeon, or even a neuro-radiologist has not made such a diagnosis. These medical specialists use sophisticated diagnostic tools like computerized axial tomography (CAT) scanners, nuclear magnetic resonance imaging (called MRI, NMR, or simply "the magnet"), and electroencephalography (EEG). But they can only identify grand mal epileptic seizures or major anatomical injuries—macroscopic (as opposed to microscopic) injuries—for example, subdural hematomas and hemorrhages.

CAT scans cannot identify subtle or microscopic tissue damage. Nearby bone produces false readings, making defects in the frontal and temporal lobes difficult to visualize. MRI is often inadequate. In some cases, it cannot be used to identify even acute subarachnoid hemorrhaging, much less microscopic damage to axons and neurons.[12] A substantial population of patients who appear normal in CAT or MRI studies actually have focal abnormalities—localized injuries to discrete parts of the brain—or severe neurologic disability.[13]

EEGs record gross brain activity. They often show normal readings on a patient with only moderate damage unless the patient actually has a seizure during the test.

Many clients undergo standard neurological examinations and are advised that nothing is wrong because the only objective tissue damage is on a microscopic level and a brain autopsy would be necessary to reveal it.

Clinical Neuropsychologist

The clinical neuropsychologist, who specializes in the evaluation and treatment of brain damage, is a far better choice for diagnosing a person's problems after minor head injury. In the area of mild to moderate brain damage, any well-trained neuropsychologist can usually outperform several million dollars' worth of medical equipment.[14] The trial lawyer can be of invaluable service to clients with complaints consistent with brain injury by referring them to a competent neuropsychologist for a diagnostic workup.

In addition to seeking word-of-mouth recommendations, a lawyer searching for a skilled neuropsychologist should make inquiries of the National Head Injury Foundation (NHIF) and local affiliates like the Georgia Association of the NHIF. These nonprofit organizations maintain lists of professionals—neuro-

psychologists, psychiatrists, neurologists, and attorneys—with expertise in diagnosing, treating, rehabilitating, and representing head-injured persons.[15]

Diagnostic Workup

A neuropsychologist's examination involves an extended set of interviews and tests, requiring from 6 to 12 hours. The process includes both traditional psychological measures and more refined tests that map specific cognitive functions under varying conditions.

A typical test battery (for example, the Halstead-Reitan Test Battery) includes the Wechsler Adult Intelligence Scale Revised (WAIS-R). The Halstead-Reitan Test Battery is particularly useful to the trial lawyer because it tests many different mental and physical functions and, accordingly, the different sectors of the brain that control those functions. It therefore generates information about specific parts that are not functioning properly.

Also, some Wechsler subtests, and thus the areas of brain function they test, seem to be insensitive to mild to moderate brain injury. Thus an estimate can also be made as to the client's pre-injury IQ, even though the overall post-injury IQ score will be lower.

Among the tests of the brain's executive functions are the Complex Figure Test, the Wisconsin Card Sorting Test, and the Category Test. Language skills are measured by the Controlled Oral Word Association Test and the Boston Naming Test. Verbal memory is evaluated using the Auditory Verbal Learning Test (known as AVLT) or the California Auditory Verbal Learning Test.

Attention is tested with the Wechsler Memory Scale, the Trail Making Test, and the Stroop Test. The Complex Figure Test assesses organizational efficiency, visuo-motor memory, and the retention of motor information over time. Visuo-motor function can be evaluated with the Bender-Gestalt test. Tests to determine emotional status include the Minnesota Multiphasic Personality Inventory Test (MMPI), the Thematic Apperception Test, and the Rorschach Test.[16]

Other tests not always employed in neuropsychological evaluations may also prove useful. The Brain Electrical Activity Mapping (BEAM) test, a computerized EEG, compares a head-injured person's responses to visual and auditory stimuli with those of a normal person. The BEAM test is particularly useful in the courtroom because it provides an excellent visual aid for demonstrating brain injury.

Positron Emission Tomography (PET) scans can detect regions of dysfunction that are manifested by decreased glucose metabolism.

Evoked potential testing can determine if there is widespread damage to the brain on a microscopic level. Electrodes are placed at the wrist's medial nerve and the posterior tibial nerve of the ankle. The test measures the degree and speed of the brain's response when the upper and lower extremities are electrically stimulated.

For test findings to be useful as evidence in court, the results must provide more than just an assessment of the client's current level of functioning. They should also address the client's premorbid functional level, as demonstrated by school records, Scholastic Aptitude Test scores, occupational level, and quality and stability of relationships.

The neuropsychological report should delineate to what degree current deficiencies represent loss or deterioration since the injury. The report should also offer an opinion on the degree of loss

of the client's educational, occupational, and interpersonal potential.[17]

The emotional response of the brain-injured person to the injury is an important element of damages. Often he or she feels a loss of the sense of self and becomes profoundly depressed.[18] The pain and suffering the client experiences due to this emotional trauma is an important part of this type of personal injury claim. Changes in intellectual and body images are often accompanied by loss of self-esteem.[19] Confidence in the ability to negotiate life smoothly and efficiently may be lost. The head-injury survivor is entitled to compensation for these losses as part of the pain and suffering claim.

The spouse's loss of consortium is another important area of damages. The brain-injured person may be so changed at times that he or she becomes, for all practical purposes, a different person—someone who behaves differently, thinks differently, exhibits a different sex drive, and has different interests from the pre-injury person. Usually the marriage is severely affected and the couple may well divorce.

The spouse may have lost the person he or she married as truly as if by death. Yet because the person still looks the same, society neither recognizes the spouse's grief nor provides the support and comfort that those bereaved by death are given. The spouse cannot divorce in good conscience or mourn with dignity.[20] The spouse is entitled to have this tragedy recognized and to be compensated for the loss.

Sleep disturbance is another area of damages that should be explored. Sleep patterns may be significantly altered by brief but frequent seizure activity. These seizures may not be perceptible to the patient, since they occur during sleep, but they can seriously disrupt normal rest. As a result, the injured person feels exhausted all the time. For some, an anti-seizure medication such as Tegretal will prove therapeutic. For others, the source of fatigue is an injury to the brain stem, and it cannot be relieved by this type of medication.

Usually the most significant area of special damages is the cost of treatment and rehabilitation. Most of the expense for treatment for brain injury is incurred in the first post-injury year, which is also when most recovery occurs. Expensive in-patient treatment at a residential facility may be required. Deficits remaining after that point may include marked and persistent defects in cognitive functioning. Costly cognitive retraining, which could last for years, may be necessary next.

Although definitive research on the point is not yet available, it appears that cognitive defects have a permanent deleterious effect on the patient's everyday life. The most consistent residual clinical problems faced by the head-injury survivor are disordered verbal and nonverbal learning and faulty memory. Depression is also common.

Learning to Cope

The injured person can learn to compensate for many, but not all, deficits rooted in permanent damage to brain tissue. Long-term recovery is based on the body's ability to use the remaining undamaged brain tissue—tissue not fully used before the injury.

Cognitive rehabilitation is designed to train this unused brain tissue to take over for the damaged areas. It also teaches the patient new methods of coping—for example, taking frequent notes in everyday life to compensate for memory loss.

The client must receive rehabilitation that addresses cognitive deficits, emotional damage, and resulting behavioral problems. The objective of this treatment is the permanent resolution of the person's emotional distress as well as his or her reintegration into the community. According to one prominent neuropsychologist, omitting any of these components in treatment can lead to the ultimate failure of treatment as a whole. Including all three can lead to a "whole-person treatment approach to which patients with minor brain injury respond favorably."[21]

Cognitive remediation, as this type of therapy is called, combines cognitive psychology, neurology, remedial education, and psychotherapy. The therapist attempts to restore thinking and problem-solving skills and to reteach social skills.

Both acute and long-term rehabilitation can be provided on an extended in-patient basis or on an outpatient basis. Remediation usually includes therapy sessions in the neuropsychologist's office and homework performed by the patient on a computer terminal.

Trial lawyers who become familiar with this type of injury will find many cases of mild to moderate brain injuries in their own practices that were previously unrecognized. These lawyers will

be sought out for association by other practitioners who have taken such cases but lack the expertise to handle them. Certainly, this field is worth mastering for the benefit of the victims of this silent epidemic. □

Notes

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