PTSD:
Politics, Genetics and Bad Drugs

IS HAVING A BABY LIKE BEING IN A TERROR ATTACK?

PTSD IN PRESCHOOLERS, CHILDREN AND COMBAT DOGS?
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AIS provides a diverse and inclusive environment that fosters intellectual discovery, creates and transmits innovative knowledge, improves human health, and provides leadership to the world on stress related topics.
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This committee will serve dual functions. The first is evaluating applications to membership to AIS and the second is evaluating applications to AIS Certification.

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Montreux, Switzerland
February 2-5, 2014

This committee will assist the Executive Director in planning and executing a dual track stress congress each year. This committee will work closely with the Congress Continuing Education Committee to make sure congress scheduling is in harmony with continuing education requirements.
Invitation to Contribute!

We are accepting submissions for feature sections in the following subject areas:

Science vs. Spirituality in Stress Management

- Family Stress
- Stress and Pain
- Workplace Stress
- Combat Stress
- Military Family Stress
- Stress and Depression

These articles should avoid promoting any specific product or facility, and if it is necessary to mention them, then any claims for efficacy or superiority should be supported by references, preferably in a peer-reviewed journal.

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As Mark Twain noted, "If you don’t read the newspaper, you are uninformed. If you do read the newspaper, you are misinformed." That certainly seems to be true for news reports dealing with PTSD. Hardly a week goes by without an announcement about some new breakthrough that provides more hype than hope, such as a few headlines highlighted in this newsletter. That’s hardly surprising in view of the failure of drug therapy and mounting concerns that it is contributing to the very high suicide rates and serious side effects in active duty personnel and veterans. While most people associate PTSD with trauma experienced in the military, civilian victims of terrifying accidents, rape and other violent crimes or natural disasters, one can also suffer from recurrent disturbing flashbacks and nightmares.

PTSD is increasingly being used as a legal defense for criminal acts by claiming that the defendants were not responsible for their actions because of a transient mental-emotional disturbance analogous to temporary insanity. Although it is usually necessary to prove direct exposure to some horrific event, many who were hundreds of miles away or in foreign countries and merely saw the events of 9/11 on TV, also claimed they were suffering from PTSD. Some people may be much more sensitive than others, and since the vast majority do not develop PTSD following severe trauma, researchers wondered if genetic influences might be responsible for these differences.

A Message from Dr. Rosch

This issue of Health and Stress focuses on PTSD, PTSI or simply PTS. It is a hot topic in the media these days and of increasing concern in our Service Members, veterans and civilian population as well. We will stay on this topic. Please join the discussion. As an AIS Fellow or Diplomate you may submit articles to future issues of Health and Stress by directing them to editor@stress.org. We invite everyone to join in the discussion on our forum: http://www.stress.org/forum/
Studies reveals that 6% of boys and 15% of girls have PTSD symptoms, and that at least 40% of U.S. high school students reported having experienced one or more traumatic events. Half of this group subsequently develop PTSD. Some studies suggest that up to 100% of children who have seen a parent killed or endured sexual assault or severe abuse tend to develop PTSD, and over one-third of those exposed to community violence such as a shooting or stabbing now have the disorder.

Preschool children exposed to domestic violence and other traumatic events are also at increased risk for developing traumatic stress disorder, Researchers studied 120 children between ages 4-6 from low income families who had been exposed to domestic violence in the previous two years. Almost 40 percent experienced additional traumatic events such as sexual assaults by family members, physical attacks or life-threatening illnesses. This group subsequently developed more behavioral problems (agression, depression, anxiety) and significantly higher rates of PTSD.

Even dogs that served alongside U.S. military personnel in Iraq and Afghanistan are now developing PTSD. In the past, many were euthanized after serving their tours of duty but now often go on to live with their handlers in the civilian world. As a New York Times article reported, "The four-legged, wet-nosed troops used to sniff out mines, track down enemy fighters and clear buildings are struggling with the mental strains of combat nearly as much as their human counterparts.

By some estimates, "more than 5 percent of the approximately 650 military dogs deployed by American combat forces are developing canine PTSD." According to the article, the care they get "can be as simple as taking a dog off patrol and giving it lots of exercise, playtime and gentle obedience training" or using the same medication prescribed for people who suffer from panic attacks. Domestic dogs can also apparently suffer from PTSD.

References

Springer D, Padgett D. Gender Differences in Young Adolescents' Exposure to Violence and Rates of PTSD Symptomatology. American Journal of Orthopsychiatry 2010; 70: 370-370


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PTSD Update

Substance abuse is not uncommon in PTSD, especially in the military, where multiple antidepressants and psychotropic drugs are often prescribed. According to the authors, prolonged exposure therapy is one of the most effective PTSD treatments and the "only treatment for PTSD endorsed in a U.S. Institute of Medicine study as evidence based." It consists of patients working with therapists to go back to their traumatic event with its intense negative emotions such as anxiety, anger, thus allowing them to relive the trauma. By repeating this process over and over, the brain is believed to progressively react less severely so that these memories becomes less traumatic. However, PTSD patients with substance abuse are usually denied this alleged "gold standard" therapy because of fears it that might exacerbate substance abuse by resurfacing negative memories. To dispel this myth, researchers recruited 103 participants who were randomly selected to either receive both prolonged exposure therapy and treatment for substance abuse, or only treatment for substance abuse.

After three months, which is the usual duration of exposure therapy, there was no significant difference in PTSD severity between the two groups. However, after nine months, while both groups had a reduction in PTSD symptoms, it was somewhat greater in the combined treatment group without any increase in the severity of their substance abuse. By the end of the trial both groups still had notable impairment in all domains assessed despite the improvements from baseline. The majority of patients still had PTSD and moderate depression, and nearly half still had evidence of substance dependence despite receiving treatment and close monitoring in this trial, and for 65% of these patients, other treatments for PTSD prior to this trial. Even with the time extension, the dropout rate was quite high, since patients attended a median of only 5 of 13 sessions.

Preventing Suicides in US Service Members and Veterans: Concerns After a Decade of War

Before the wars in Iraq and Afghanistan, the incidence of suicide in active duty US Service Members was consistently 25% lower than that in civilians. Between 2005 and 2009, the incidence of suicide in Army and Marine personnel nearly doubled. From 2009 through the first half of 2012, the incidence of suicide among Army soldiers increased further, with the number dying of suicide each year exceeding the number killed in action. It goes on to discuss why suicides increased so markedly in soldiers and Marines, but not Navy or Air Force personnel or civilians, the need for better screening and diagnostic measures and improving public education. With respect to prevention or treatment, better access to professional assistance and crisis call lines, dispensing medication in individual blister packs rather than bottles, reducing the stigma of mental illness and increasing social support were listed. However, no mention was made of the indiscriminate use of antidepressant and psychotropic drugs as possible causes.
**Posttraumatic Stress Disorder**

This was an article designed to be photocopied and handed out to patients. It describes the symptoms of PTSD and provides the following information on treatment:

- Cognitive behavioral therapy with a trained psychiatrist, psychologist, or other professional can help change emotions, thoughts, and behaviors associated with PTSD and can facilitate managing panic, anger and anxiety.
- Certain medications can reduce symptoms such as anxiety, impulsivity, depression, and insomnia and decrease urges to use alcohol and other drugs.
- Group therapy can help patients learn to communicate their feelings about the trauma and create a support network.
- Becoming informed about PTSD and sharing information with family and friends can create understanding and support during recovery.

**Expanding the Boundaries of PTSD Treatment**

This editorial reviewed the history of therapy for PTSD and discussed why the articles might be important but also criticized their shortcomings, especially the inability to apply their findings to other demographic groups. It concluded that "Overall, comparative studies of PTSD therapies find that they rarely outperform each other in efficacy. Thus, the cost and appeal of treatments to clinicians and patients, their intensity of intervention, and clinical setting and training issues may ultimately be as or more relevant than comparative efficacy in choosing a course of treatment for PTSD. In the current era, there is a focus on short-term treatments (in part an antidote to the overly long psychotherapies of much of the 20th century). However, it is not clear how long treatment needs to be maintained to produce enduring positive outcomes, especially for patients with PTSD and comorbidities and difficult social circumstances. The field of PTSD therapy is still young, and the pursuit of clinically meaningful treatments for all types of patients, like the process of recovery for patients with PTSD, is an ongoing challenge."

**Effect of Cognitive-Behavioral Couple Therapy for PTSD: A Randomized Controlled Trial**

This was a study of the effect of Cognitive-Behavioral Conjoint Therapy (CBCT) in 40 heterosexual and same-sex couples in which one partner met the criteria for PTSD according to the Clinician-Administered PTSD Scale. The intervention involved 19 hours of treatment sessions consisting of a blend of cognitive-behavioral approaches relevant to couple treatment and PTSD. Patients assigned to receive couple therapy (n = 20) had clinically meaningful reductions in PTSD symptom severity and a modest improvement in relationship satisfaction, as compared with patients (n = 20) assigned to a waiting list to receive therapy when the trial was over. The treatment group was carefully selected to achieve the best results since they were predominantly white, all were employed, had been together for an average of 8 years and had the support of an intimate partner willing to participate in the treatment. Couples were excluded if one or both had recent substance dependence, if there was evidence of severe intimate partner aggression in the past year, or if both partners had PTSD. There was no data on how concurrent psychotherapies or medications might have affected the outcome or whether the couples were compensated financially for their participation in the study. Neither the patients assigned to the waiting list nor patients who dropped out of the trial were included in the follow-up assessment. There is no reason to conclude that the modest benefits reported would be seen in couples that had not been "cherry picked."

In summary, I could find nothing in any of the above articles that was new or would be useful for clinicians involved in the thorny problems of diagnosing and treating PTSD. In addition, many important details were omitted, especially in the discussion of preventing PTSD and analyzing the therapeutic options currently available. As will be seen, the same applies to press releases issued by the Centers of Excellence.

**References**


The Department of Defense has a well-oiled public relations machine that churns out press releases designed to convince Congress as well as the public that the billions of dollars they receive every year are being put to good use. The Veterans Administration does this through its National Center for PTSD, but most of the PTSD news comes from the Defense Centers of Excellence (DCoE) Psychological Health and Traumatic Brain Injury in the Media releases. These are usually brief reports from various publications dealing with some new potential PTSD breakthrough. However, lately there has been a paucity of good news as illustrated by the following articles over the last month or so:

**Behavioral Health Study Aims to Improve Health of the Force** (DVIDS) 08/20/2012 08:00 PM EDT

**New Army Policy Restricting Access to Service Dogs** (CBS News) 08/20/2012 08:00 PM EDT

**Virginia Researchers Explore Link Between Brain Injury And Crime** (WAMU Virginia Public Radio) 08/20/2012 08:00 PM EDT

**DCoE Hosts Post-Traumatic Stress Disorder Webinar** (Health Net) 08/20/2012 08:00 PM EDT

**Vets’ Job Hunt May Be Thwarted By Disability Bias** (NPR) 08/20/2012 08:00 PM EDT

**Fund Helps Pentagon Add Clinics for Vets** (Associated Press in Army Times) 08/20/2012 08:00 PM EDT

**Easing Financial Stress After Deployment** (Stripes Okinawa) 08/19/2012 08:00 PM EDT

**Resume Writing Tips for Finding a Job in the Civilian World** (Stripes Guam) 08/19/2012 08:00 PM EDT

**Are You Almost Depressed?** (Military News) 08/19/2012 08:00 PM EDT

**Trauma and Technology: New Tools Teach Veterans, Clinicians about PTSD** (Boston.com) 08/19/2012 08:00 PM EDT

**PTSD Poses Increased Health Risk to Women** (Health Canal) 08/19/2012 08:00 PM EDT

**The False Stigma of Seeking Mental Health Treatment** (Scott Air Force Base) 08/14/2012 08:00 PM EDT

**Army Suicides Doubled Last Month from June's Total** (Associated Press) 08/15/2012 08:00 PM EDT

**Grim Record: Soldier Suicides Reach New High** (Time) 08/15/2012 08:00 PM EDT

**Army Faces Highest Monthly Total of Suicides** (Army Times) 08/15/2012 08:00 PM EDT
It's not necessary to provide abstracts for most of these, since it is easy to guess what they contain from their titles. None are very optimistic or promise any progress. The picture they paint of PTSD is particularly pathetic, especially with respect to its steady increase along with skyrocketing rates of suicide, and our apparent inability to do anything about it. It should be obvious that drugs are not the solution, and there is growing evidence that they may be contributing to the problem.
Drug Therapy For PTSD: More Harm Than Good

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New York Medical College

Since the onset of the Iraq and Afghanistan conflicts, there has been a progressive rise in the prevalence of PTSD in our troops. One study of almost 300,000 who served in those countries found that rates of the disorder increased from just 0.2 percent in 2002, to 22 percent in 2008, a greater than 1000 percent jump. There is no evidence that this is related to greater combat exposure but it does correlate with an increase in drug administration. Paxil and Zoloft, the only two approved drugs for treating PTSD, both carry black box warnings of increased risk of suicide. In addition, these and other serotonin reuptake inhibitors are barely more effective than placebos, so it is common to add Risperdal or other psychotropic drugs, as well as stimulants like Ritalin and Adderal, sleeping pills and narcotics, which can result in a lethal cocktail. We have discussed this at length in prior Newsletters, and three examples of such disasters that were reported in the February 12 2011 New York Times are described below:

**Corporal Nicholas Endicott** joined the Marines in 2003 after working as a coal miner in West Virginia. He served two tours in Iraq and one in Afghanistan, where he was involved in heavy fighting and saw his comrades killed. On one mission, he was blown more than eight feet in the air by a roadside bomb. After returning from his third deployment, in 2007, Corporal Endicott told doctors that he was having nightmares and flashbacks, and was diagnosed as having PTSD. Although numerous medications were prescribed, he continued to suffer from severe anxiety, headaches and vivid nightmares. After a car accident, he assaulted the other driver and was admitted to the National Naval Medical Center in Bethesda for anger management therapy and training. On Jan. 29, 2008, he was found dead in his room and at least nine prescription drugs to reduce anxiety, improve sleep and reduce pain were found in his system. He was 26. His father said, “He survived over there. Coming home and dying in a hospital? It’s a disgrace.”

**Senior Airman Anthony Mena** was part of a military police unit that conducted combat patrols alongside Army units in downtown Baghdad. His duties included cleaning up the remains of suicide bombing victims and he was nearly killed by a bomb himself on one occasion. He returned from his second deployment to Iraq complaining of back pain, insomnia, anxiety and nightmares. Doctors diagnosed PTSD and prescribed powerful psychiatric drugs and narcotics. Despite this, his pain and depression deepened. In 2008, he told one doctor “I have almost given up hope. I should have died in Iraq.” Instead he died in his Albuquerque apartment, on July 21, 2009, five months after receiving a medical discharge. During those months, he rarely left home without a backpack filled with medications. A toxicologist found eight drugs in his blood, including three antidepressants, a sedative, a sleeping pill and two potent painkillers. The medical examiner concluded it was an accident. Anthony Mena was 23.

**Gunnery Sergeant Christopher Bachus** had spent virtually his entire adult life in the Marine Corps, deploying to the Middle East in 1991, Iraq during the invasion of 2003 and Afghanistan in 2005. When he returned home, he suffered from anxiety, flashbacks of combat in Iraq, irritability and depression due to what doctors called "survivor's guilt". He was diagnosed as having PTSD and was started on drugs for depression, anxiety and Klonopin, an antipsychotic. In 2006, after a period of improvement, his medications were discontinued, but he asked to be put on them again six months later. Although he was still anxious and depressed, he was deployed to Iraq again in early 2007, but was sent home in a few months when it was discovered that he was on psychiatric medications. Frustrated that he could not be in a front-line unit and ashamed to work behind a desk, he applied for a medical discharge, which proved to be a lengthy and stressful process that made things worse. In March 2008, a military doctor added opiates to his medical regimen to relieve back pain, and shortly thereafter, he called his wife in Ohio and told her “You know, babe, I am really tired, and I don’t think I’ll have any problems falling asleep tonight.” He was found dead in his on-base quarters in North Carolina a few days later. His wife later told investigators that he sounded delusional, but not suicidal. She was correct. An autopsy revealed two antidepressants, oxymorphone and oxycodone opiates, and an anti-anxiety medication in his system. Nearly 30 bottles of pills were found at the scene, most of them recently prescribed. According to the report, the delirium he experienced in his final days was “most likely due to the interaction of his medications.” Sergeant Bachus was 38 and had served in the military for seventeen years.
All of these three veterans died in their sleep, had five or more prescribed medications in their systems at autopsy and were classified as accidents, not suicides, since they had not taken more than prescribed dosages — just what their doctors had ordered. And for thousands more, these drugs make their quality of life much worse than the symptoms for which they were prescribed. One survey revealed that 12% of combat troops in Iraq and 17% of those in Afghanistan are taking antidepressants or sleeping pills to cope with stress. As emphasized in last June’s Newsletter, sleeping pills may be responsible for over 500,000 deaths/year and the incidence of suicide is 300 percent higher in seniors who take hypnotics.

Spending on stimulants jumped from $7.5 million in 2001 to $39 million in 2010, over a fivefold increase. The number of Ritalin and Adderall prescriptions for active-duty soldiers increased by nearly 1,000 percent in five years from 3,000 to 32,000. These drugs are usually prescribed for children and adolescents with ADHD (attention deficit hyperactivity disorder) because they increase focus and attention. Their main use in the military is to help fatigue and sleep deprived troops stay awake and alert, but they do much more than this. Because they increase the secretion of adrenaline-like chemicals, they also stimulate learning and memory formation. Similarly, a surge in these fight or flight hormones during stress also creates vivid and lasting memories. Some researchers believe that since PTSD represents a pathological type of learning known as fear conditioning, stimulants could increase the risk of developing this disorder. This is supported by a study in which subjects were given propranolol, a drug that blocks the effect of norepinephrine, or a placebo just before they heard one of two stories: an emotionally arousing one or a neutral one. When their memory of the stories was tested a week later, it was found that propranolol selectively impaired recall of the emotionally arousing story but not the neutral story. This shows that emotion raises norepinephrine, which enhances memory, since this did not happen when norepinephrine was blocked.

In PTSD, a shocking combat situation elicits a hard-wired fight or flight fear response with intense emotional arousal and a surge of norepinephrine that burns in the memory of the traumatic experience. It also promotes fear conditioning, a form of learning in which previously neutral stimuli such as sights, sounds and smells become linked with a trauma. Thus, for a soldier injured in a bomb blast, anything like the sound of an explosion or a burning odor is now a potent conditioned stimulus that can evoke the trauma and trigger PTSD symptoms like a flashback or startle reaction. Because norepinephrine enhances emotional memory, a soldier taking a stimulant medication that releases norepinephrine in the brain could be at higher risk of becoming fear-conditioned and developing PTSD from combat trauma. This sequence of events is supported by animal and human studies. Injecting minute amounts of norepinephrine into the amygdala, a region of the brain that encodes fear, significantly enhanced fear conditioning. In another study, college students were shown a picture paired with a small electric shock. Before viewing the pictures, subjects were randomly given yohimbine, a drug that releases norepinephrine in the brain, or a placebo. When students were tested 48 hours later, those who had received yohimbine had greater fear-associated learning. They also had a harder time “unlearning” the fear when presented with the picture in the absence of a shock, than students in the placebo group. This implies that soldiers with elevated norepinephrine levels due to stimulants are also at more risk of relapse when re-exposed to the initial stressor. And since the treatment of PTSD requires unlearning fear responses, troops taking stimulants would also be more resistant to treatment. Conversely, blocking the effects of norepinephrine with beta blockers can stop fear-conditioning and possibly even prevent PTSD. In one study, emergency room patients were randomly assigned to receive either the beta blocker propranolol or a placebo within six hours after experiencing a traumatic event. When tested one month later, those who had received the propranolol had significantly fewer PTSD like symptoms than the placebo group.

None of the above proves that drugs are contributing to the steady increase in PTSD and suicides, since there are other factors such as traumatic brain injury and childhood and adolescent influences that can also increase risk. However, it does suggest that drugs may be doing more harm than good in combat situations. The Army has already discouraged the off label use of Risperdal, and many feel that the possible link between stimulants and PTSD should be investigated as soon as possible.

Reference

Friedman RA Why Are We Drugging Our Soldiers? 
Unlike diabetes, cancer or a heart attack, Post Traumatic Stress Disorder (PTSD) is not a diagnosis that everyone is happy with since there is no way to confirm its existence, much less measure its severity. There are no blood tests, biopsies, x-rays or other imaging studies to indicate that any abnormality is present. A PTSD designation depends entirely on the patient’s complaints, and as demonstrated in past Newsletters, it is relatively easy to fabricate these in order to obtain a medical discharge and tax-free disability compensation for life. The reason these benefits never expire even though PTSD patients often experience complete remissions, is that that the term "disorder" implies some condition that is permanent and can’t be cured. Senior military officers as well as psychiatrists have now suggested replacing "disorder" with "injury", which does not carry the connotation of a lifelong stigma that often discourages people with mental health problems from seeking assistance.

This issue is coming to a head since the new edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) is scheduled to be published in March 2013. This is the bible of mental illnesses that is used by the courts, Armed Services, Veterans Administration, insurance companies and everyone else to determine the presence of a mental disorder, and in some cases to rate its severity for reimbursement purposes. A group of 12 psychiatrists will be holding public hearings to determine whether PTSI (Post Traumatic Stress Injury) should replace PTSD and there is even a website devoted to promoting this change. One of the most ardent proponents has been Gen. Peter Chiarelli, former Vice-Chief of Staff of the Army, who was concerned with the increasing rates of PTSD and suicides he encountered after two tours in Iraq and struggled to find ways to correct these.

As the four star general pointed out, "No 19-year-old kid wants to be told he’s got a disorder", and he was the first to drop the word "disorder" by referring to the condition as simply PTS (Post Traumatic Stress). PTS was adopted by officials at the highest levels of the Pentagon, including Defense Secretary Leon E. Panetta, but was rejected by the medical community and especially pharmaceutical companies. This was likely because of concerns that insurers and government bureaucrats would not be willing to pay for a condition that wasn’t explicitly labeled a disease, disorder or injury. In addition, any change might raise questions about the causes of PTSD, the best way to treat the condition, barriers that prevent troops from getting help, and other issues that could have major financial implications for health insurers and federal disability claims. Huge amounts of money and reputations could be jeopardized and vested interests obviously want to maintain the status quo. While General Chiarelli retired last February many others are now also urging that PTSD be abandoned and replaced by PTSI, since injury suggests that the condition can be healed and is not necessarily permanent. There will surely be a lively debate about this proposed change, so stay tuned to see what happens.

Reference
www.posttraumaticstressinjury.org/
Recent AIS Book Reviews

The Art of Loving Life
Written by: AIS Fellow- Sandra Thebaud, PhD
Reviewed by: Kellie Marksberry, AIS Executive Director

Dr. Sandra Thebaud, a Fellow of AIS, has written a book for the masses. Dr. Thebaud shares her personal story of living through a stressful divorce and how becoming aware of and managing her stress effectively, enabled her to “get through the fog” and on to loving life! Everyone will be able to relate to her words in some way as she helps you to identify what is holding you back from living your best life. Her book follows the outline of one of her highly attended stress management workshops—introducing very common, but highly effective stress management techniques. She takes you step by step through defining your personal stressors, understanding the ways in which stress affects your health and asks you to examine your own life and identify areas in which you can start to make changes. If you would like to reduce the stress in your life and enjoy happier and healthier days this is a good starting point.

Stress Pandemic: The Lifestyle Solution
Written by: AIS Member- Paul Huljich
Reviewed by: Kellie Marksberry, AIS Executive Director

Paul Huljich, AIS Member and co-founder of Best Corporation, (a pioneering organic foods company in New Zealand) has shared his personal story of leading his company to great success, while driving himself to a complete nervous breakdown. This book is a hybrid: Cautionary Tale/Guidebook for ordinary people who are living with chronic stress in their lives. Mr. Huljich’s shares a vivid description of how unmanaged stress overtook his health and left him in a swift downward spiral, ultimately resulting in being institutionalized and diagnosed with bipolar disorder. His story resonates with openness and honesty that can only come from someone who has “been there”. Mr. Huljich rejected the grim recommendation to take psychotropic drugs for the rest of his life and began to research and explore natural ways to heal himself. In this book, Mr. Huljich offers “9 Natural Steps” to become aware of the stressors in your life as well as empowering techniques to minimize their harmful health effects. The preventative and restorative measures Mr. Huljich implemented to restore his health are well researched and scientifically proven to relieve stress and improve health. Mr. Huljich represents AIS Membership well with this book.
What is particularly troublesome, if not tragic, is that effective treatments that are much safer than drugs are being ignored. In some cases, there is good evidence that they are being deliberately suppressed by vested interests that are also attempting to get them banned. One example is CES (cranial electrotherapy stimulation), which has long been acknowledged by the FDA to be effective for the treatment of depression, anxiety and sleep disturbances, three of the major components of PTSD. CES has also been used successfully to reduce pain, substance abuse and withdrawal symptoms associated with drug and alcohol dependency as well as tension and migraine headache that are frequently seen in PTSD patients. Claims for efficacy are supported by over 150 publications in peer-reviewed journals and it has enjoyed a superb safety profile over three decades of use in millions of patients here and abroad. In point of fact, CES is considered so safe, that it does not require a prescription in any country except for the U.S.

Little can be said about possible mechanisms of action, since PTSD is not a distinct diagnosis. PTSD is merely a description of symptoms and there are no blood tests, imaging studies or other objective criteria to confirm its presence much less measure its severity. Lord Kelvin, the 19th century mathematician-physicist who developed the absolute or Kelvin temperature scale emphasized, "To measure is to know", and "If you cannot measure it, you cannot improve it." But if you can't define something, how can you possibly measure it? Paxil and Zoloft, the only two drugs approved by the FDA for the treatment of PTSD, are presumably effective because they boost levels of serotonin. However, no studies have shown any consistent serotonin abnormalities in PTSD and, as noted previously, both of these antidepressants also have black box warnings that they can increase the risk of suicide. And, like other serotonin reuptake inhibitors, they are not significantly superior to placebos in clinical trials required to prove efficacy in depression.

The reason for this is that depression is not a discrete diagnosis, which, like PTSD, consists of certain symptoms that can have very different causes. That explains why there are so many very varied therapies, ranging from psychiatric interventions, ultraviolet light, acupuncture, sleep deprivation, and exercise, to vitamins and other supplements, hormones, vagal and various types of cranial electrical stimulation, as well as at least four different classes of antidepressant drugs. However, there is no way to accurately predict which one of these will work best in any given individual, so it is not surprising that the majority fail to improve significantly. In some instances, patients may have a spontaneous remission and the most recent treatment gets the credit. It is amazing to me that these observations are rarely if ever mentioned in articles about treating PTSD, since almost all the above therapies for depression have also been proposed. In addition to serotonin, beneficial effects on norepinephrine, dopamine and other neurotransmitters have been invoked to justify the use of some drugs, again without any proof to support these claims.

In contrast, ECT (electroconvulsive therapy) remains the most consistently effective treatment for severe or drug resistant depression. Although it has been in use for over 75 years, we still don't know why it
works. More recently, rTMS (repetitive transcranial magnetic stimulation) has also been approved for drug resistant depression. It is a non invasive procedure that directs an electromagnetic field with specific characteristics to an area of the frontal cortex that has diminished electrical activity on positive emission tomography (PET) scanning in moderate to severely depressed patients. Treatment is non invasive and is given for 20 to 30 minutes several times a week. Unlike all other depression therapies, there is an objective marker to verify its efficacy, as shown below.

Treatment can be administered by a fixed apparatus (left) or a hand held device for portable use (center). PET scan to the right shows diminished electrical activity, especially in the left prefrontal cortex, prior to treatment. This progressively returns to normal levels that mirrors the degree of improvement during the course of treatment. Patients typically receive 20 to 30 treatments over four to six weeks (five times per week). Any benefits are usually not noticeable until at least 10 sessions and a sustained effect may require 4-8 weeks of intensive treatment. In some cases, “refreshment sessions” are needed after 6-12 months to preserve the antidepressant effects. Other than occasional headache or unpleasant sensation at the site of stimulation, there are no adverse side effects. However a course of treatment costs $12,000 to $15,000, with limited if any reimbursement by insurance companies, Medicaid and Medicare. Whether rTMS is effective in PTSD remains to be seen, but there may be a method to determine this based on a report that magnetoencephalography (MEG) scans can identify PTSD with over 95% accuracy as shown below.

The MEG device resembles a huge hair dryer in which the patient's head is inserted, as illustrated above to the left. A helmet-shaped cap covering most of the head containing up to 300 sensors is also available (center) but was not used in this study. Researchers found that PTSD patients showed a pattern of increased activity just above the right ear in the temporal and parieto-occipital regions of the brain associated with memory, as shown in the two scans to the right. The first one in a patient with active PTSD shows markedly increased activity in area B. The second in a patient with a history of PTSD who had not had symptoms for years shows decreased activity in B, as well as the other areas. However B still reveals evidence of the “PTSD Fingerprint” that is not seen in normal people, suggesting that Meg can also measure its severity.
WHY Continued….

These signals of activity, which reflect ionic currents flowing through neurons during synaptic transmission, are very weak. Electroencephalography (EEG) measures these currents but in a different way and there is no comparison. Magnetic resonance imaging (MRI) uses magnetic fields with a signal 3,000,000,000,000,000 times stronger than those that can be detected by MEG. I spoke with Apostolos Georgopoulos, MD, PhD who heads the team that reported this discovery, and considers the MEG test for PTSD as similar to monitoring blood sugar in diabetes in order to keep it under control. It is completely safe, uses no magnets or isotopes, only takes a minute, and can be done as often as necessary. In addition, it doesn't require recreating any of the traumatic events that can trigger PTSD. During the procedure, subjects simply view a spot of light so that the brain is not stimulated by having a task to perform and is relatively "idle". During that minute, MEG captures a map of the brain's electrical activity once every millisecond. In comparison, functional magnetic resonance imaging (fMRI), which Georgopoulis had previously used, takes measurements approximately every three seconds.

Although he believes MEG to be the first biomarker to confirm the presence and measure the severity of PTSD, I am not aware that his findings have been replicated by others. In addition, his study consisted only of veterans with a history of PTSD and others who were normal, and while it showed a difference, this is hardly the same as a diagnosis. A difference might be due to anxiety, depression, frequent nightmares, prior exposure to life threatening situations or severe trauma of any type in people who never go on to develop PTSD. It is therefore necessary to obtain MEG scans in subjects with these and possibly other mental disorders. That's not likely to happen very soon, since there are only about 20-30 MEG devices in the U.S. and they cost about $2 million. At present, the only immediate practical value would be to measure the efficacy of some pharmaceutical or other intervention in a patient with a mental condition to see if clinical improvement correlated with diminution of abnormalities on a MEG scan, similar to what is seen with rTMS on PET scans. In that regard, it is likely that CES, which is much less expensive than rTMS, is just as effective in depression, much safer than drugs, and Zhagi et al have shown it significantly increases the production of serotonin, GABA, and endorphins. A few months ago, CES was also shown to be effective in PTSD in a pilot study, confirming numerous anecdotal reports and studies showing it is preferred by 73% of veterans over other nondrug therapies.

The 2012 budget allocated $7.2 billion for treating PTSD and brain trauma and since drugs are obviously not the answer, a good portion of this will be spent on cognitive-cognitive behavioral attempts to change the way people think about situations, such as exposure therapy, stress inoculation, eye movement desensitization and cognitive restructuring. In addition to a severe lack of personnel to administer these techniques, a recent extensive review of the literature concluded that "no psychological intervention can be recommended for routine use following traumatic events and that multiple session interventions, like single session interventions, may actually have an adverse effect on some individuals." We are spending millions on other "Alternative Medicine" approaches, yoga, hypnosis, acupuncture, massage, art, dance and pet therapy, as well as herbal supplements. One congressman has requested $2 million to study the benefits of prayer and the Army just awarded $3 million to develop a thyroid releasing hormone (TRH) nasal spray to prevent suicide. But, despite growing evidence of CES efficacy in treating PTSD, there is little Federal financial support for further research. What is worse, is that bungling bureaucrats have been trying to prevent its use by using chicanery, deception and red tape. This was vividly illustrated at the recent FDA Docket hearing as explained in greater detail in prior Newsletters. See also http://www.stripes.com/news/promising-ptsd-treatment-faces-hurdle-1.186247# and stay tuned to see what happens next in this David and Goliath battle!

Reference
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This is another good example of how the media's hunger for anything related to PTSD leads to attention grabbing headlines such as "Why Having a Baby Is Like Being in a Terror Attack: One in three mothers suffers post-traumatic stress." "Natural Births a Major Cause of PTSD" and "Is Natural Birth Connected with Post-Traumatic Stress in New Moms?" These are all based on an article entitled, "Postpartum Post-Traumatic Stress Disorder symptoms: The Uninvited Birth Companion" published in the relatively obscure Israel Medical Association Journal in June, 2012. However, it attracted little attention until these and other sensational headlines began to surface two months later, with in some cases, what appears to be a deliberate distortion of the study's finding. As the senior author had acknowledged, the debate over whether or not childbirth qualifies as a "traumatic event" is controversial. Although hardly a sudden and unexpected event like an accident or rape, childbirth is accompanied by a justified fear of danger, since expectant mothers worry for their own safety as well as the health of their babies. There is certainly nothing new about this. In addition, the virtual disappearance of puerperal fever and the ready availability of safe and effective pain relief has significantly reduced childbirth stress. The purpose of this study was simply to gather information about its prevalence and possible risk factors for developing post-traumatic stress following delivery that might be minimized or avoided.

The 102 participants were interviewed within 2 to 5 days after delivery and completed questionnaires to evaluate psychosocial and demographic factors, social relationships, and evidence of a personality disorder. One month later, 89 completed another questionnaire to assess mental state after delivery as well as the Post-traumatic Stress Diagnostic Scale, a self-administered questionnaire designed to aid in the diagnosis of PTSD. Their average age was 32, a third were having their first baby, and 85 percent were married. Researchers reported that 26 percent had symptoms of post-traumatic stress, 8 percent suffered from some of the components of PTSD and 3.5 percent fit the criteria for full-blown PTSD. Symptoms included flashbacks of the labor, avoiding any discussion of the event, physical reactions such as palpitations during such discussions, and a reluctance to consider having another child. One of the most influential factors was pain management during delivery, and according to the lead author, "The less pain relief there was, the higher the woman's chances of developing post-partum PTSD." Fear of the labor itself, both in terms of expected pain levels and danger to themselves and their children, were additional factors. 80 percent of the women with PTSD also had discomfort with being undressed, mental health problems in a previous pregnancy or postpartum complications, emotional crises, and high fear of childbirth in their current pregnancy, all of which have been reported in many studies to be instrumental in the development of PTSD.

In addition, prevalence studies are only relevant to the population being studied and antenatal, maternity and postnatal care in Israel may differ from that in the U.S., U.K. and other countries. For example, retired Vice Admiral Stephen Barchet, MD an AIS Fellow, obstetrician and member of our Combat Stress Board, who had seen some of the sensational newspaper coverage of this paper, wrote to me as follows:

Some years ago when stationed in South Vietnam I oversaw a large number of Vietnamese parturients and post partum patients of whom the majority delivered au naturel. Searching my memory I can't recall a single case of PTSD even considering current definitions and criteria for making that diagnosis.
One of the most surprising findings in my opinion was that support during labor in the form of a doula (midwife) had no effect on preventing or lessening post-traumatic stress. In addition, in contrast to most other studies, socioeconomic and marital status, level of education, and religion also had no impact. There are numerous other reasons why few if any valid conclusions can be drawn from this study, much less justify the sensational headlines it generated. All the subjects were in a hospital maternity ward and although there were no apparent restrictions to inclusion, there was no information on how many women might have originally been eligible but did not participate for some reason. With respect to the Post-traumatic Stress Diagnostic Scale, even if it were a valid measure, only 89 of the original 102 completed this, which is too small a group to claim that vaginal birth without pain medications was the major cause of PTSD. Natural birth was highlighted by the media because of the report that 80% of the 7 women who developed PTSD (5 women) did not receive pain medication. Many of the reports stated that these women either chose or opted for natural childbirth without pain relief but there is nothing in the paper to support this. It simply states that “… fewer women who developed PTSD symptoms received an epidural and there was a greater incidence of PTSD symptoms in women who did not receive an epidural.” It is possible that an epidural was not available to some of the women, which could be traumatic if they wanted to have this. There was an extremely high rate of caesarean birth (53%) and the media claim that being accompanied during labor had no impact on the rate of PTSD is not supported by any statistics or percentages. These and other findings are contrary to those of numerous other studies and reviews of satisfaction with childbirth, PTSD after childbirth, and the role of pain and suffering during labor.

Despite the above flaws, the authors offered some valuable advice by emphasizing “the importance of inquiring about previous pregnancy and birthing experiences and the need to identify at-risk populations and increase awareness of the disorder.” Some immediate measures that should be implemented are more detailed discussion of pain relief options and insuring that patients’ bodies are properly covered during delivery. As the senior author also noted “Dignity is a factor that should be taken into account. It’s an issue of ethics and professionalism, and now we can see that it does have physical and psychological ramifications.” This study was given much more publicity than it deserved and has probably done more harm than good in understanding the incidence and severity of PTSD after childbirth, especially because of the very small numbers and limited follow-up period. The lesson it teaches us is that many media outlets look for sensational and shocking material to attract readers, will manufacture it if it doesn’t exist and it is essential to scrutinize the source and draw your own conclusions based on the facts.

References
See also

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Bad Genes: Is PTSD Inherited?

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Support for this comes from a National Center for PTSD study that identified a new gene that is allegedly linked to PTSD. It is estimated that about eight percent of the general population will develop PTSD during their lifetime, as opposed to a whopping 20 percent of combat veterans. Previous genome studies have linked the Retinoid-Related Orphan Receptor (RORA) Alpha gene to other psychiatric conditions such as attention-deficit hyperactivity disorder, bipolar disorder, autism and depression. According to the lead author, "Like PTSD, all of these conditions have been linked to alterations in brain functioning, so it is particularly interesting that one of the primary functions of RORA is to protect brain cells from the damaging effects of oxidative stress, hypoxia and inflammation." The study group consisted of 500 male and female veterans and their intimate partners, all of whom had experienced trauma and approximately half of whom had PTSD. The majority of the veterans had been exposed to trauma related to their military experience whereas their intimate partners had experienced trauma related to other experiences, such as sexual or physical assault, serious accidents, or the sudden death of a loved one. All subjects were interviewed by a trained clinician and DNA was obtained from blood samples. The DNA analysis examined 1.5 million genetic markers for signs of association with PTSD, which revealed a significant association with a variant in the RORA gene.

The researchers then looked for evidence of replication using data from the NIH Detroit Neighborhood Health Study. This was designed to examine the relationships between environment and health and included genetic profiling. A significant but weaker association between RORA and PTSD was found and the researchers concluded, "These results suggest that individuals with the RORA risk variant are more likely to develop PTSD following trauma exposure and point to a new avenue for research on how the brain responds to trauma." I may be missing something, but don't see how this statement can be justified or how this study has any practical value. The major problem with diagnosing PTSD is that it is mimicked by patients suffering from depression as well as ADHD and other conditions in which RORA gene variants are even more common, nor does this seem like a very cost effective screening tool. In addition, these were all white non-Hispanic participants and it is not known if the findings apply to other racial groups. More importantly, how the study group was selected may be important. How likely is it that you could find 500 male and female veterans and their intimate partners, all of whom had experienced trauma and approximately half had bona fide PTSD? How accurate could the diagnosis of PTSD have been given the limited follow-up time?

This is not the first time a particular gene has been associated with post traumatic stress disorder. Earlier this year, University of California, Los Angeles researchers found that two genes involved in the production of serotonin called TPH1 and TPH2, were linked with a higher risk of developing PTSD. As one of the authors noted, "We suspect that these gene variants produce less serotonin, predisposing these family members to PTSD after exposure to violence or disaster." This was based on a study of 200 people from 12 multi-generational families (3 to 5 generations) exposed to the devastating 1988 Spitak earthquake in Armenia, that killed at least 25,000 people. Here again, the accuracy of questionnaires to assess PTSD is questionable and findings may not be generalisable to other ethnic/racial populations. And in a study of genocide survivors from Rwanda, variability of the PRKCA gene that is associated with an improved ability to remember emotional memories was also linked with an increased risk of PTSD. This also involved a selected population and questionable accuracy of PTSD assessment. It's interesting that neither of these two studies attracted any media attention. The most
likely reason for this is that PTSD in these instances involved civilians rather than military personnel. In addition, the cause was not due to combat stress, and therefore could not have been anticipated or prevented. The public is primarily interested in PTSD in the military because of mounting evidence that current treatment as well as diagnostic approaches have been a disaster, and there is no solution in sight.

References


DNA analysis examined 1.5 million genes obtained from blood samples. The genotyping included genes related to trauma and stress responses, such as RORA, which is involved in regulating the expression of genes involved in stress response. The study found that individuals with certain RORA gene variants were more likely to develop PTSD following trauma.

These results suggest that individuals with the RORA risk variant are more likely to develop PTSD following trauma. According to the lead author, "These results provide support for the hypothesis that RORA gene variants may contribute to the development of PTSD, and highlight the importance of understanding the genetic basis of this disorder."
Hi

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