The Pain of Trauma: The Psychopharmacology of Physical and Sexual Trauma and the Devastating Effects on the Brain

Dr. Merrill Norton Pharm.D.,D.Ph.,ICCDP-D
Clinical Associate Professor
University of Georgia College of Pharmacy
Athens, Georgia

Data from the National Survey of Adolescents and other studies indicate that one in four children and adolescents in the United States experience at least one potentially traumatic event before the age of 16, and more than 13% of 17-year-olds—one in eight—have experienced posttraumatic stress disorder (PTSD) at some point in their lives.

Many of these young people also have access to psychoactive substances that can both dull the effects of stress and place teens at increased risk of experiencing trauma. It is estimated that 29% of adolescents—nearly one in three—have experimented with illegal drugs by the time they complete eighth grade, and that 41% have consumed alcohol.

The National Child Traumatic Stress Network

After a traumatic event, people often report using alcohol to relieve their symptoms of anxiety, irritability, and depression. Alcohol may relieve these symptoms because drinking compensates for deficiencies in endorphin activity following a traumatic experience. Within minutes of exposure to a traumatic event there is an increase in the level of endorphins in the brain. During the time of the trauma, endorphin levels remain elevated and help numb the emotional and physical pain of the trauma. However, after the trauma is over, endorphin levels gradually decrease and this may lead to a period of endorphin withdrawal that can last from hours to days. This period of endorphin withdrawal may produce emotional distress and contribute to other symptoms of posttraumatic stress disorder (PTSD). Because alcohol use increases endorphin activity, drinking following trauma may be used to compensate this endorphin withdrawal and thus avoid the associated emotional distress. This model has important implications for the treatment of PTSD and alcoholism.

Volpicella,J., Balaraman,J., The Role of Uncontrollable Trauma in the Development of PTSD and Alcohol Addiction, Alcohol Research and Health, vol.23, No.4, pp256-262.

This presentation will review the latest neurobiological research of the traumatic brain and impact of the use of alcohol and drugs that may lead to substance use and other mental disorders. A review of the effective treatments for the traumatized brain who experiences trauma stress will also be discussed.
Objectives:
Participants will:

1.) Describe the neurobiological changes in the substance use disordered brain and the impact of trauma on the pathways in the reward brain;
2.) Distinguish the differences between the reward brain and the anti-reward brain and the impact of trauma on both;
3.) List the biological changes between the substance use disordered and trauma brains;
4.) Explain the various type of medications used to treat the traumatic disordered brain.