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INDIVIDUAL & FAMILY PSYCHOPHARMACOLOGIC TREATMENT OF:

- MOOD AND ANXIETY DISORDERS • OBSESSIVE-COMPULSIVE DISORDER
- PERVASIVE DEVELOPMENTAL DISORDERS/AUTISM • MENTAL RETARDATION
- ATTENTION DEFICIT DISORDER • TOURETTE'S DISORDER • TRAUMATIC PSYCHIATRY
- TRAUMATIC BRAIN INJURY • POST-TRAUMATIC STRESS DISORDER
- CHRONIC PAIN MANAGEMENT • WORKERS' COMPENSATION

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DOG BITES:

An Overview of Psychiatric Trauma and Discussion of Treatment

Being attacked by a dog is a significant public health problem that is both frightening and life-threatening.¹ Dog bites account for more than 80% of the 1-2 million animal bites treated annually in the United States² but because many dog bites are not reported to local health and animal welfare authorities, the true incidence is probably much higher than reported figures.³ Although dog bites are one of the most common traumas experienced by people of all ages, there is very little in the literature which discusses the psychological consequences of dog bites.

This overview will present relevant statistical information on dog bites; discuss the traumatic effects of dog bites; and recommend treatment strategies. Information pertaining to adults will be followed by issues specific to children and adolescents.

STATISTICS

A sample study done in 1995, in El Paso County, Texas and detailed in Public Health Reports, noted the following statistics:⁴

Dog bites occurred all over the body:

- Face/head (16.1%);
- Hands/arms (36.7%);
- Feet/legs (33.2%);
- Trunk (8.0%).

¹ Avner & Baker, 1991.

² Garcia; Rosenberg, Dos Santos, Abrams & Schunk, 1995.

³ Wishon & Huang.

⁴ Rail R. Patrick, M.S. & Kathleen M. O'Rourke, Ph.D., "Dog and Cat Bites: Epidemiologic Analyses Suggest Different Prevention Strategies," Public Health Reports, University of Texas-Houston, May-June 1998.

Overall, 46.4% of all bites were unprovoked. Certain breeds of dogs were more aggressive than others and caused a higher proportion of dog bites. Unprovoked bites were more common among the following breeds:

Chows (81%)	German shepherds (75.6%)
Pit bulls (76.9%)	Rottweillers (75%)

Records indicate that most victims of dog bites are children, who tend to be more severely injured compared to adults.⁵

A study of dog bite patients from one hospital's Emergency Room in 1997 found the following:⁶

1. Events leading to the bite demonstrated that most often the child was interacting with the dog before the bite.
2. Most often, a single dog was involved in the attack and the dog's owner usually was the parent or a neighbor.
3. Dog bites in children often required emergency department treatment for wound repair, rabies evaluation, and infection prevention.

PSYCHOLOGICAL CONSEQUENCES OF DOG BITES

Contributing Factors:

Intrinsic

1. Preexisting psychopathology, such as depression and/or anxiety disorders.
2. The general vulnerability of the victim, which may be the result of previous traumatic events in life such as physical/sexual abuse, violent crime, or injury in a motor vehicle accident.

Extrinsic

1. The location of the bite. A dog bite to the face is usually more traumatizing than a bite to the lower part of the body, with the exception of the genitals.
2. The length of time a person was under attack by the dog, The longer the attack, the greater the degree of experienced trauma.

⁵ Sinclair & Zhou, 1995; Tuggles, Taylor & Stevens, 1993; Weiss, Friedman & Coben, 1998).

⁶ Lisa Marie Bernardo, Mary Jane Gardner, Joan O'Connor & Nicole Amon, "Dog Bites in Children Treated in a Pediatric Emergency Department," Journal of the Society of Pediatric Nurses, Philadelphia, April-June 2000.

3. The number of dogs involved in the attack. An attack by more than one dog usually results in a greater degree of experienced trauma.

DIAGNOSTIC CRITERIA FOR ACUTE STRESS DISORDER AND POST-TRAUMATIC STRESS DISORDER

People who sustain dog bites will frequently experience symptoms classified as Acute Stress Disorder (308.3) or, if symptoms last longer than 1-month, as Post-Traumatic Stress Disorder (309.81).⁷ Since the DSM-IV-R lists no criteria for trauma resulting from "dog bite," trauma from a dog bite is diagnosed according to the following criteria, as abstracted from the DSM-IV-R.

Acute Stress Disorder

The following must be present: (1) Person experienced, witnessed, or was confronted with an event involving actual or threatened death or serious injury, and a threat to the physical integrity of self/others; and 2) Person's response involved intense fear, helplessness, or horror. Either while experiencing the traumatic event, or after, the person must have three or more of the following dissociative symptoms:

1. Subjective sense of numbing, detachment, or absence of emotional responsiveness.
2. Reduction in awareness of his/her surroundings (e.g., being in a "daze").
3. Derealization.
4. Depersonalization.
5. Dissociative amnesia (i.e., inability to recall an important aspect of the trauma).

Post-Traumatic Stress Disorder

Both of the following must be present: (1) Person experienced, witnessed, or was confronted with an event involving actual or threatened death/serious injury, or by threat to the physical integrity of self/others; and, 2) Person's response involved intense fear, helplessness, horror. (*Note: In children, this may be expressed instead by disorganized or agitated behavior.*) Also: (1) Duration of symptoms must be present for more than one-month; (2) Disturbance must cause clinically significant distress/impairment in social, occupational, other areas of functioning. One or more symptoms in each of the following categories must be present:

⁷ Diagnostic Statistical Manual IV-R (DSM-IV-R) published by the American Psychiatric Press.

The traumatic event is persistently reexperienced:

1. Recurrent and intrusive distressing recollections of the event (images, thoughts). *In young children, repetitive play may occur in which themes/aspects of the trauma are expressed.*
2. Recurrent distressing dreams of the event. *In children, dreams may be frightening without recognizable content.*
3. Acting/feeling as if the traumatic event were recurring (reliving it, illusions, hallucinations, dissociative flashbacks). *In young children, trauma-specific reenactment may occur.*
4. Intense psychological distress at, and/or physiological reactivity to exposure to, internal/external cues that symbolize/resemble as aspect of the traumatic event.

Stimuli associated with the event are persistently avoided:

1. Efforts to avoid thoughts, feelings, or conversations associated with the trauma.
2. Efforts to avoid activities, places, or people which arouse recollections of the trauma.
3. Inability to recall an important aspect of the trauma.
4. Markedly diminished interest or participation in significant activities.
5. Feeling of detachment or estrangement from others.
6. Restricted range of affect (e.g., unable to have loving feelings).
7. Sense of foreshortened future (e.g., does not expect normal life span, career, marriage, children). *May manifest as fear of a future trauma which will prove to be fatal.*

Persistent symptoms of increased arousal not present before the trauma, indicated by 2 or more of the following:

1. Difficulty falling or staying asleep.
2. Irritability or outbursts of anger.
3. Difficulty concentrating.
4. Hypervigilance.
5. Exaggerated startle response.

THE NEUROPSYCHIATRIC BASIS OF POST-TRAUMATIC STRESS DISORDER⁸

A traumatic situation, where a threat to one's body integrity or life occurs, may produce severe anxiety symptoms which are diagnosed as Post-Traumatic Stress Disorder (PTSD). Most patients also develop a concurrent agitated depression.

The Neuroanatomical Basis of Post-Traumatic Stress Disorder

The reason treatment of PTSD is prolonged can be understood on the basis of neuroanatomy. A group of neurons in the brain stem (below the cortical areas of the brain) are called the *LOCUS CERULEUS*. Connections between the *LOCUS CERULEUS* -- which activate the brain/memory center in the temporal lobe of the brain (the *HIPPOCAMPUS*) -- are a neuroanatomic basis for the recurrence of PTSD since this area of the brain contains norepinephrine-containing neurons with neuroanatomic connections to the *HIPPOCAMPUS*.

When a person reexperiences a trauma, the hippocampal connections activate the norepinephrine-containing neurons. This norepinephrine surge causes subjective symptoms of severe anxiety -- a "flight or fight" response -- which is maladaptive when one experiences a non-life-threatening trauma. For example, a person traumatized by a past auto accident later experiences severe anxiety even while riding safely in a car.

CLINICAL PRESENTATION OF RESULTANT ANXIOUS AND DEPRESSIVE SYMPTOMS IN CHILDREN AND ADOLESCENTS

The clinical presentation of symptoms vary and are dependent upon the age and the cognitive/verbal capacity of the child/adolescent. Since children 3 years or younger have not developed sufficient speech to be able to discuss the extent of trauma they are experiencing, their diagnosis must be inferred by changes in behavior and mood.

Anxiety: Increased anxiety is one of the clusters of symptoms that occur, and trauma-induced anxiety may result in the following behavioral changes:

1. The child may develop significant sleep disturbances. For example, prior to the trauma, the child may have been able to sleep through the night alone. *In contrast*, after the trauma, the child will have difficulty falling asleep and/or will frequently awaken in the middle of the night from nightmares and go and sleep with their parent(s) or other significant person in their life.
2. The child may develop fears of being alone. For example, prior to the trauma, they may have been content to play alone. *In contrast*, after the trauma, the child refuses to play alone and begins shadowing the parent(s) or other significant person in their life.
3. The child may develop fear of leaving their home, fearing another attack and bite. This can include refusal to attend school and play dates, and lead to decreased social contacts.
4. The child may show diminished ability to think and concentrate, which will diminish

⁸ Textbook of Neuropsychiatry, edited by Stuart Yudofsky and Robert E. Hales, M.D. (American Psychiatric Association Press, June 1997).

school performance.

Depression: Children (and adults) subjected to trauma have a significant risk of developing a mood disorder. Up to 50% of persons who experience trauma will develop significant symptoms of mood disorders, such as Major Depressive Disorder (296.23), in which a person is depressed most of the time, most days. A lesser depressive diagnosis, such as Adjustment Disorder with Depression (309.0), indicates the individual is depressed for less than half of the day. Even if a child is unable to discuss feeling depressed, a child's trauma-induced depression may result in the following behavioral changes:

1. Mood changes, in which the child may become irritable, appear unhappy, and have episodes of crying.
2. The child may develop what are termed vegetative symptoms, such as decreased appetite and/or difficulty falling and/or staying asleep.

EVALUATION

Evaluation of Adults: Anyone who has sustained a traumatic dog bite should have a complete forensic evaluation. This includes:

1. The history of the incident as related by the patient.
2. Initial and current effects of the trauma emotionally, socially, professionally, or scholastically.

Patients are asked if they have reexperienced the event in spontaneous daytime thoughts and/or dreams/nightmares. They are also questioned to determine if there are continuing effects of the trauma on their social, educational, professional, and/or daily functioning. A key question is: *"At the time of the dog bite, did you fear you would be killed by the dog?"*

3. Individual and family psychiatric history.
4. Background history including any previous traumatic experiences.
5. Identifying witnesses to the dog bite.

It is important to determine who contemporaneously saw the victim attacked by the dog because frequently, a family member may be traumatized by having witnessed the attack. As a result, they may also develop either Acute Stress Disorder or Post-Traumatic Stress Disorder. It is important to also ask them the key question: *Did you fear your loved one would be seriously harmed or killed?* It is important that family members who witnessed a dog bite have an independent evaluation.

Evaluation of Children: The goal in evaluating children is the same as for adults, but the approach must be age-appropriate. In younger children, it is best if they relate their memory of the incident without their parents present. If they are fearful of doing this and the parent is present, the parent should stand away from the child and not speak during the interview. The child is asked to picture the entire event and describe it and their physical feelings at the time, as if telling about a movie. Children may be asked age-appropriate questions to determine symptoms of Post-Traumatic Stress Disorder.

After the child's interview, the parents are interviewed and asked for their observations of the child in daily life and at school, emotionally and socially, both before and after the trauma. Permission to speak with the child's teacher should be obtained in order to hear the teacher's observations of the child at school before and after the trauma. This includes changes in appearance, fearfulness, withdrawal, and/or a lowered level of educational functioning. Review of report cards and other school records with the teacher is also helpful.

Corroborating Information: In order to obtain corroborating evidence of the effect of the trauma upon a patient, ask permission to speak to family members, friends, teachers, employers, and/or teachers. These people are in a position to compare the patient's mood, personality, social, occupational, and/or educational functioning both before and after the trauma.

TREATMENT OF ADULTS AND CHILDREN

Treatment of both adults and children may be difficult because as long as the person retains a memory of the dog attack, they may continue to be fearful of dogs. In addition, if the person has experienced a prior trauma in their life (such as physical/sexual abuse, a previous dog bite, or a serious motor vehicle accident), the dog bite may bring to consciousness unresolved issues of a past traumatic event.

Multimodal Treatment Approach: A multimodal treatment approach is most helpful, including traditional individual supportive psychotherapy; behavioral therapy with desensitization and *in vivo* exposure; family therapy; psychopharmacologic therapy; and group therapy.

Traditional Individual Supportive Psychotherapy

Play Therapy: Beneficial for children under 10 years of age, as it can reassure them their parents will protect them from another attack.

Cognitive Behavioral Therapy: Beneficial for children over 10 years of age, adolescents, and adults. Consists of changing cognition and decreasing fears.

Behavioral Psychotherapy

Classical Wolpe Desensitization: This can result in diminished fearfulness.

Eye Movement Desensitization Response (EMDR): This is a new treatment for Post-Traumatic Stress Disorder in which the patient is asked to think of specific aspects of their traumatic experience while the therapist

simultaneously relaxes them and asks them to move their eyes.

In Vivo Desensitization: An example is to have someone go with the dog bite victim to a pet store where they can be exposed to dogs in a controlled environment in which there is virtually no chance of being bitten.

Family Therapy: When a child has been the victim of a dog bite, working with their parents and siblings is important because there are cases where an entire family witnessed the dog attack and also became traumatized. All family members -- whether they witnessed the dog attack or not -- can be helpful by:

1. Becoming educated about various dangerous breeds and teaching this to their child.
2. Being emotionally supportive and giving a sense of protection from further dog attacks.
3. Helping with the desensitization techniques described above.
4. Teaching relaxation techniques with their children.

Treatment of Adults and Children

Psychopharmacologic Therapy: There is no specific psychopharmacologic treatment which can be a "cure" for Post-Traumatic Stress Disorder due to its neurophysiology and neuroanatomy. However, the psychopharmacologist will treat resulting anxious and depressive symptomatology.

Acute Stress Disorder and Feelings of Panic: Symptoms can be treated by use of Benzodiazepines if a full Panic Disorder is not present. Clomazepam (Klonopin) is more long-acting than alprazolam (Xanax) or lorazepam (Ativan). Benzodiazepines are not given to children or those with substance abuse history due to addictive potential.

Depression and Anxiety: SSRI's (selective serotonin reuptake inhibitors) treat symptoms of depression and chronic anxiety which occur (non-panic anxiety type). Only Zoloft is FDA-approved, but other SSRI's can be helpful, i.e., the more sedating paroxetine (Paxil), fluvoxamine (Luvox).

Peripheral Physical Anxiety Symptoms: These are symptoms such as increased heart rate which can be treated with the use of propranolol, a beta-blocker that helps reduce these symptoms by blocking physical manifestations of anxiety. However, it is contraindicated in patients with asthma and cardiac disorders.

Group Therapy: Although group therapy is generally not available -- since dog bite incidents are sporadic and happen in diverse locations -- attending a group comprised of people who have experienced various traumatic events could help a person feel they are not alone in experiencing their symptomatology.

CANINE EDUCATION

Adults and children should be taught appropriate behaviors during interactions with dogs and be taught the warning signs most dogs display prior to a bite.⁹

1. Obtain a book on dogs to read about different breeds and see photographs to identify which breeds frequently bite people such as rottweillers, pit bulls, German shepherds, terriers. This information can lessen fears of people-friendly breeds such as golden retrievers and Labradors.
2. Learn information about basic canine behavior, such as:
 - Dogs express fear and anxiety by biting.
 - Attacking dogs frequently bite the face, so one should keep their body away from the dog's face.
 - Sudden movements provoke attack and staring at the dog without moving may calm the dog.

EDUCATIONAL APPROACH WITH CHILDREN AND PARENTS

Both children and their parents should be educated about the symptoms which may already be experienced, or those which may occur in the future. Frequently, symptoms of Post-Traumatic Stress Disorder will be associated with depression, and may evolve over a period of 6-9 months from the date of the dog bite. If these symptoms occur, the child and their parent(s) need to recognize that these symptoms are part of the onset of Post-Traumatic Stress Disorder as a result of the traumatic dog bite.

Children need to be helped to understand the following, in order to lessen their feelings of vulnerability and helplessness:

1. That many children become fearful whenever they have reminders of the incident, such as seeing other dogs or even watching movies/TV shows with dogs.
2. That they may feel more nervous when they leave their house, fearing they may be attacked and bitten again by a dog.
3. That they may experience depressive symptoms, such as feelings of helplessness, frustration, and diminished social and/or educational functioning, but these feelings are not a sign of weakness. Rather, they are a foreseeable reaction to having been bitten.

⁹ Lisa Marie Bernardo, Mary Jane Gardner, Joan O'Connor & Nicole Amon, "Dog Bites in Children Treated in a Pediatric Emergency Department," Journal of the Society of Pediatric Nurses, Philadelphia, April-June 2000.

PROGNOSIS

After a traumatic dog bite, both adults and children may no longer feel their world is as safe a place as it once was, and may become more hypervigilant for other trauma. The prognosis for most adults is good, but for most children it is guarded.

Vulnerability: The prognosis depends upon the vulnerability of the adult or child and the severity of the depression and Post-Traumatic Stress Disorder.

Psychotherapy: After receiving a course of psychotherapy lasting from 4-6 months, patients may continue to have some fear of dogs but will have:

- Recognized that most dogs do not attack and bite;
- Learned to avoid specific dangerous behavior around dogs;
- Understood better how to cope with their residual fears.

OTHER SOURCE MATERIAL

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