Anxiety: Challenges of Normal and Abnormal Responses

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Abstract

Anxiety is an important physiological and psychological response in humans, especially for those with intellectual and/or developmental disabilities (IDD). Anxiety contributes to improved attention, performance and survival in threatening situations. When the response becomes overlearned, habitual, or otherwise dysfunctional, increased anxiety can lead to disruptive behavior, inefficient brain patterns, and avoidance of pleasurable experiences. A brief review of the neuroanatomic underpinnings, assessment techniques and therapeutic strategies is presented. DSM-5 terminology is reviewed. Classes of medications are summarized.

Introduction

Anxiety occurs as a normal physiologic and psychological response to changes within an individual and to events in his/her environment [1]. We all experience fear in response to a perceived, imagined or real threat. We experience anxiety in anticipation of an imminent threat. Signal anxiety occurs normally to alert the individual that something is not right with the environment – that a potential danger exists. This response involves a helpful increase in attention, a focusing of mental, physical, sensory, and emotional systems toward analysis of the environment for the seriousness of threat to oneself, and to choose the best response to this threat.

This is the fight-or-flight response that helps many people make life-saving decisions. Pathological anxiety states of a similar magnitude can override daily functions and render an individual dysfunctional because despite the fact that there is no real danger, yet the person is acting as if his or her life were in extreme danger.

People with intellectual and developmental disabilities (IDD) encounter many situations that challenge their abilities, and that put them in positions of making decisions for which they may feel unprepared. This chapter intends to provide the reader with a framework for assessing the appropriateness of an individual's or a group's response to an anxiety inducing situation. Developing a supportive response can help to achieve the most functional response possible for the individual or group.

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Since the advent of the DSM-5, anxiety disorders have been given a separate chapter for classification purposes (see Table 124.1), from obsessive-compulsive disorders and from traumatic disorders (see Table 124.2) [2]. Yet many of these conditions exist co-morbidly and in conjunction with other mental health conditions. The rationale for drawing distinctions between anxiety, compulsive, and trauma related disorders lies in peoples' behaviors and in the types of treatment strategies that are employed to address distressing symptoms. It can seem confusing to change the conceptual understanding of these disorders as related types of anxiety spectrum responses (i.e. to switch from DSM-IV to DSM-5 terminology and classification). For example, obsessions and compulsions, which involve repetitive thoughts and behaviors, may occur

Table 124.1 Principles of pharmacological management of depression

Treat rather than not treat depression when in doubt if it is present.
Start low, go slow, get there.
Adequate duration at adequate dose before considering treatment with a specific antidepressant a failure. Patients should be treated for a minimum of 4–6 weeks at therapeutic or maximum dose of an antidepressant. If, after this time, no response is seen, switch to another drug in the same class or use a drug of a different class with different receptor and neurotransmitter profile, such a bupropion or venlafaxine.
Clear treatment goals and benchmarks of success (in other words know when you failed, know when you succeeded).
Use a stepwise approach and draw an algorithm with upcoming steps in each patient.
Make the algorithm legible for other providers involved in care.
Communicate.
Do not keep on treatment if there is no response at adequate dosages at adequate duration (see above). Consider switching to another antidepressant of the same or different class. Consider augmentation with another agent or combination treatment if the response was partial.
Prefer monotherapy to therapeutic cocktails if possible. Rational polypharmacy may be necessary in specific patients; the rationale should be documented.

Table 124.2 Diagnostic categories of anxiety disorders (DSM-5)

Separation Anxiety Disorder
Excessive fear/anxiety about separation from home or attachment figures.
Anxiety exceeds the person's developmental level
Physical symptoms may occur in children; palpitations, etc. in adults
Symptoms must last at least six months in adults
Selective Mutism
Failure to speak in specific expected social situations, despite speaking in other situations
Interferes with education or occupation
Duration at least one month; r/o communication disorders
Specific Phobia
Persistent fear of exposure to specific object or situation
Avoidant behavior interferes with functioning at work, or in social situations, lasting for 6 months or more
The person is markedly distressed about the problem
Social Anxiety Disorder
Persistent fear of exposure to possible scrutiny by others
Fears being negatively evaluated, leading to avoidance
Anxiety is out of proportion to actual threat posed by the situation
Typically lasts for more than six months
Panic Disorder
Intense escalating fear accompanied by at least 4 of 13 somatic and cognitive symptoms
Persistent concern of recurrence for more than a month
May feel like having a heart attack
With or without Agoraphobia
Agoraphobia
Pervasive avoidance of certain situations that bring on excessive anxiety or panic
Active avoidance of the situations that potentially may create symptoms
Has lasted more than six months
Generalized Anxiety Disorder
Uncontrollable, excessive anxiety for more days than not
For at least a six month period, with symptoms present for most days
Anxiety and worry associated with: restlessness; easily fatigued; difficulty concentrating; irritability; muscle tension; sleep disturbances

(continued)

Table 124.2 (continued)

Substance/Medication-Induced Anxiety Disorder
From history, physical exam, or laboratory that anxiety or panic developed in close relation to intoxication, withdrawal, or exposure to medication
Not better explained by other anxiety disorder
Does not occur exclusively in setting of delirium
Anxiety Disorder Due to Another Medical Condition
Anxiety and/or Panic predominate
Does not occur solely during delirium
The other medical condition must be established by the clinician and the anxiety symptoms can be etiologically related to the medical condition
Other Specified Anxiety Disorder
Do not meet full criteria for other anxiety disorders
Limited-symptom attacks
Unspecified Anxiety Disorder

without generalized anxiety type symptoms and be unrelated to any exposure to a traumatic event.

Anxiety symptoms arise spontaneously and naturally in everyday life. The prevalence of anxiety disorders in people with IDD ranges from less than 2 % to more than 17 %, necessitating supports and therapeutic interventions [3]. As the individual responds with discomfort to different forms of anxiety, disturbances in function may occur. This sequential development may progress from normal reactive states to repetitive avoidance and then to behavior that becomes dramatic, such as self-injurious behaviors of picking or head-banging. Thus, we must remain alert to the gamut of clinical severity and appropriateness of the anxiety responses, especially when individuals are less able to express their experiences readily in words or stories for others to understand.

Pathophysiology of Anxiety Responses

Anxiety involves feeling states, thoughts and beliefs, behavioral responses, and a great deal of physiologic arousal [4]. Meaningful emotional events enter our memory storage and retrieval systems through activity in the hippocampus. Activating serotonin receptors in the hippocampus may reduce worry, irritability and distractibility symptoms in generalized anxiety disorder [5]. Numerous clinical studies have found that pharmacological strategies alone do not address the biological tendencies to dysfunctional anxious responses. Cognitive behavioral therapy (CBT) and psychotherapy techniques have been used in conjunction with medications to address basic skill deficits, improve anger management, improve coping skills under stressful conditions, decrease automatic worry patterns, and decrease substance abuse [5, 6].

The basal ganglia and limbic system systems of the brain are coupled for goal-setting and goal-attaining functions. Rewarding events and objects are experiences that need to be remembered and differentiated from experiences that are undesirable. Activity can be directed toward desired goals. It must be monitored for its effectiveness and the feedback information incorporated into any action. In early infancy these are totally focused on experiencing being fed and rested. Distress and anxiety rise when the need is met in an untimely fashion, in insufficient amount, or in overabundance. In adulthood, information about potential dangers moves beyond feeding oneself, to complex situations that require calculation of which is the best of several possible actions. The amygdala must provide modulating information to the motor control systems so that meaningful actions can be taken [7].

Anxiety reflects activity within a behavioral inhibition system in response to threat of punishment, to omission of anticipated reward, and to perceived extreme novelty. Ongoing behavior is inhibited and increased attention is given to environmental cues. This model includes neuroanatomic structures based on empiric evidence: anxiolytic drugs have primary action on sites in the septohippocampal system; anxiety evoked by fear conditioning involves the amygdala; and, fight-or-flight behavior involves the amygdala, medial hypothalamus, and central gray area. Cue-reinforcement associations (fear conditioning) are formed in the amygdala and transferred by way of the entorhinal cortex to the hippocampus. Results of past and current motor actions (programs) are relayed from the prefrontal cortex

by way of entorhinal pathways to hippocampus. Ascending noradrenergic and serotonergic neurons modulate the input and relative gain in this system. Output from the hippocampus through the cingulate cortex, or through nucleus accumbens can interrupt motor behaviors and complex automatic behaviors (see Fig. 124.1).

Symptoms of anxiety may be organized into three broad categories: autonomic, behavioral, and cognitive [8]. The neuroanatomic model above illustrates connections by which arousal symptoms and avoidant behavior can assume progressively intrusive roles in a person's life. Words can amplify the activity in these circuits, bringing new meaning and impact from frontal and prefrontal areas with stored experiences and becoming as effective as danger at activating these interrelated systems. Attributing meaning to physiologic symptoms does not indicate abnormal peripheral nervous system activity. This was shown by objective markers of autonomic arousal in patients with panic disorder, obsessive-compulsive disorder, anxiety disorder, and normal control subjects. There were no differences between any of the groups on any measure of autonomic arousal, though the patient groups endorsed significant clinical symptoms. In other words, people can respond to symptoms of arousal with very different mental attribution, from an assessment that the arousal is appropriate, to a moderate indicator of threat, to severe life-threatening danger. It takes more than just the autonomic nervous system arousal to induce anxiety or panic.

Even at rest, there are lateralized and regional differences in cerebral blood flow and brain oxygen consumption for people with panic disorder compared to normal controls or people who were not responsive to lactate-infusion challenge (a standard way of mimicking panic symptoms in laboratory settings). The resting state showed minimally increased or decreased blood flow in these subjects with panic disorder. In a study under the state of anticipating a panic attack, marked increase in blood flow was found in parahippocampal areas, anterior corpus callosum, right temporal lobe, orbitofrontal cortex, thalamus, hypothalamus, and midbrain as compared to healthy control subjects [8].

Studies on individuals who experienced panic attacks while undergoing dynamic imaging studies show that the timing of measuring metabolic and activity changes are very crucial to determining characteristic patterns. For example, one person demonstrated both increasing and decreasing activity in the dorsolateral prefrontal cortex dur-

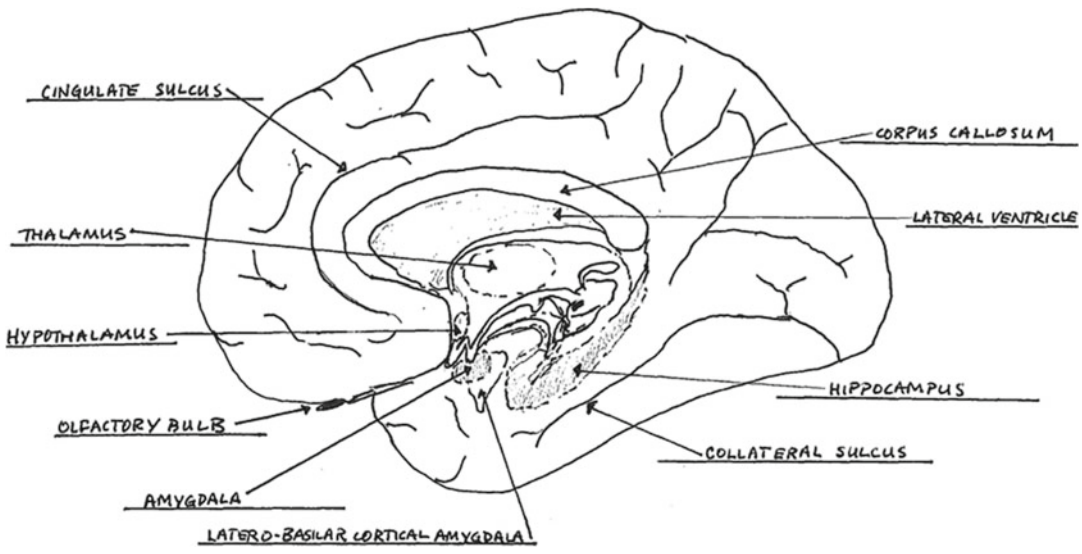

Fig. 124.1 Medial view of human brain showing relationship of hippocampus and amygdala

ing the course of the session. Using the report of another person providing retrospective description of their mental state during the session, a feeling of unpleasantness was associated with increasing bilateral insula activation, and further increased anxiety near the end of the session correlated with activity in the right amygdala [8].

Studies conducted during periods of heightened anxiety and periods of calm in people with known diagnoses of anxiety and panic disorder are trying to correlate observable functional impairments with underlying structural impairment. Functional Magnetic Resonance Imaging (fMRI) studies recorded increased latencies for emotional words (using the emotional Stroop test) indicating emotional interference in patients and higher activation in dorsolateral prefrontal cortex and higher right-to-left asymmetry in parahippocampal areas as compared to healthy controls. This suggests an ongoing greater demand on cognitive function for emotional responses in patients with panic disorder. Data from pictures depicting neutral or fear-inducing or other strong emotions reflect varying responses, with increases and decreases of activation in similar brain regions (using fMRI, PET, and EEG). There is a pattern of involvement of the anterior corpus callosum across all the studies [8].

The neural networks involved in motor-sensory-cognitive tasks have not been widely studied, but early studies suggest decreased prefrontal cortical area involvement in subjects with panic disorder and anxiety, with suggestion of abnormal subcortical activation of the flight/fight response. A few limited studies have looked at specific genetic carriers of candidate genes in panic disorder (e.g. 1A 5-HT1A – 1019G allele; %-HTTLPR S allele; 158 val allele). Imaging suggests that genetic factors predispose to dysfunctional cortico-limbic interactions during emotional processing [8].

Dynamic imaging studies during acute and short-term treatment have shown decreased activation in the areas of the fear network. Most studies were performed at rest, though there are early studies comparing rest and periods of anxiety activation. Studies involved paroxetine, transcranial magnetic stimulation, duloxetine, cognitive behavior therapy, psychodynamic therapy, and antidepressants (all classes) [8].

In sum, the amygdala is a critical component to normal and abnormal arousal responses to perception of threat. The past decade has provided evidence of substantial contributions from the insula and anterior corpus callosum. Most of these studies are drawn from analogy to fear-conditioning responses in animal models and absolute interpretation in humans is at best an approximation. There is no clear volumetric lateralization or regional change in human imaging studies. Sustained hyperarousal and fear responses involve additional pathways that are not identified in phasic responses, and improved human studies as well as animal models are needed to better elucidate these circuits of activation and hypo-responsiveness.

Diagnostic Considerations

Anxiety disorder is a major cause of disability and lost productivity [9]. Anxiety disorders frequently present with other medical and psychiatric illness, particularly depression. The National Comorbidity Study reported a lifetime prevalence of any anxiety disorder of 25 % in the adult US population [10]. A retrospective study across fifty years (1947–1997) in Norway reported anxiety disorder prevalence at 11.5 %, similar to depression, in people with IDD [11]. The prevalence of anxiety among persons with IDD was reported as 60 % by Alemenara Barrios et al. [12]. This study was conducted on individuals with severe levels of IDD and concomitant neurologic (e.g. epilepsy 22.5 %) and medical disorders (e.g. Down Syndrome 20 %). These two studies illustrate the difficulties in finding an exact numerical definition for the prevalence of anxiety disorders in people with IDD, because of challenges in defining the term, the breadth of severity of symptoms, and differences between community samples and specialized services samples. Although there are genetic predispositions (anxiety disorders run in families) to the development of anxiety disorders, they also arise

spontaneously and as secondary conditions to other medical conditions. Untreated anxiety disorder symptoms are associated with inappropriate under-usage of health care. Furthermore, people with IDD are a vulnerable population who are at increased life-time risk for emotional, physical, and/or sexual abuse which results in post-traumatic stress disorder (PTSD) and increased likelihood of anxiety [13].

Individuals with severe-profound levels of IDD may not express their experiences of stress directly. Any assessment has to focus on overall changes in behavior, rather than on direct expressions of anxiety. Generalized anxiety disorder (GAD), phobias, panic disorder, and obsessive-compulsive disorder were the most common late-life anxiety problems reported in a review of primary care practices [14]. The rates of these disorders and PTSD are somewhat higher in psychiatric clinics, ranging from 10 to 73 %. PTSD, like GAD, usually lasts for years or decades, waxing and waning in intensity of symptoms, and often generalizing to similar situations. One of the diagnostic criteria for PTSD is having an initial triggering event that caused the traumatic, anxiety response. When exposed to a similar trigger or part of the trigger, an individual may experience all of the extreme hyper-arousal symptoms.

Anxiety disorders drive increases in medical morbidity and health care cost over the life-span [15]. Early recognition of anxiety disorders may lessen the overall health care needs and financial burden by increasing the likelihood of successful treatment. Nonetheless, the impact of anxiety disorder extends into the indirect costs of impaired social function. The studies of the cost of specific mental illnesses cannot be made in isolation from other values of the society. Persons with IDD are an identified vulnerable population within our society and merit our attention and support. When having ongoing, unrecognized anxiety and panic, people with IDD will have reduced ability to draw on their cognitive abilities, increased tendency to withdraw from new experiences, reluctance to volunteer their preferences, and possibly react with violence to protect themselves. Recognition of anxiety disorders in persons with IDD is important for the individual's health and quality of life, as well as for the people who support them within their communities. Appropriate treatment with medication and therapy can improve function and communication for people with anxiety disorders and IDD.

Anxiety can make you crazy! Maybelle was 49 years old when she was discharged from the state institution (as a result of deinstitutionalization of the facility for people with IDD). She had been in institutional care since the age of 8 years, in IDD systems, mental health institutions, in her home state and the three surrounding states. She carried a diagnosis of schizoaffective disorder, with documentation that she had a persistent delusion that her baby was killed by the University Hospital's medical staff.

She has resided in the community for seventeen years. After her first clinic visits, there was no clear evidence of psychosis. Antipsychotic medication (she was taking thioridazine) was tapered over two years to prevent rebound reactivity and with her guardian's consent. Her PCP, listening to Maybelle's detailed descriptions of her concerns and worries, insisted on retrieving old medical records (from storage). There it was documented that Maybelle had given birth to a baby girl (impregnated while in the state mental hospital) at the University Hospital when she was 32 years. The baby died in the pediatric intensive care unit at age four months from cardiac complications. After the team learned this 19 year old history (the antipsychotic taper had been completed), Maybelle started psychotherapy to help her deal with her unresolved grief issues.

Borderline personality disorder was evident in the splitting of staff, the projection of her impulses and emotions and motivations on others, rash decision making and impulsive anger. Symptomatically, she improved once staff was given permission by the Human Rights Committee to enforce sensible safety practices (such as not wandering downtown streets in midnight hours). Cognitive improve-

ment was noted after the antipsychotic was completely discontinued and valproic acid which had been prescribed to reduce impulsivity was also discontinued. This assisted in both her individual psychotherapy as well as her ability to communicate her observations and responses to her staff. Anxiety symptoms to any change in expectations were clinically responsive to verbal reassurance and lorazepam (a benzodiazepine) at 1 mg twice daily. In her third year of treatment, a trial of stimulant medication was started for symptoms of not staying on task long either at home or at her supervised work setting or in community settings like supermarkets. She continued to take methylphenidate SR 20 mg every morning, with sustained improvement in psychotherapy, work, and community functioning. For about 14 years, Maybelle participated in the local Civitan Club; maintained a job first at Goodwill (receiving Employee of the Year twice in 9 years), then in a pet grooming business; and, she has travelled out of state with her staff.

At the age of 65 years, she indicated that she was feeling like she didn't need to keep working all the time. Her team met and advocated for her retirement. She is pleased to have retired, and with fewer demands, has had no behavioral struggles. Medications were reduced; methylphenidate was discontinued. She attends a local bingo game every week, and cares for her five pets. [Diagnoses: Intellectual disability, borderline personality disorder (in relative remission), post traumatic stress disorder (resolved), generalized anxiety disorder, attention deficit disorder (resolved)]

Clinical Manifestations of Anxiety

It is common for people who are worried to be irritable and short-tempered. For people with IDD who have difficulty controlling their impulses this may be expressed with increased, rapid-onset aggression toward themselves or others. Individuals frequently find a mechanism though an action or actions that reduce the tension caused by underlying anxiety. It then becomes a matter of convenience to repeat the action until it eventually becomes habitual. The behavior, however, does not necessarily express specifically what is troublesome or anxiety-provoking. The challenge for the clinician is to help the individual with IDD to cope with many different anxiety-inducing experiences and to develop a flexible array of adaptive, effective and safe responses.

Seeing habits as a reflection of what is immutable – that is "just who they are" – can be an intellectual trap for the diagnostician. On the one hand, a person can develop a habit or mannerism that has no deleterious repercussions. On the other hand, the habit may be masking a significant amount of psychic and physical effort to avoid a repetition of a previous bad or negative experience. It may also become a pattern reflecting an over-generalized response to any stressful stimuli. For example, a person may now anticipate any change or transition, even minor ones, as life-threatening, and react with striking out or injuring themselves.

A confusing aspect for both the diagnosis and treatment of anxiety in patients IDD who depend upon others for much of their daily living activities, is the interaction between the individual and his or her environment, including the "support-people" – family, professionals, or direct care staff. The parent, relative, or professional must attempt to differentiate ordinary, everyday personality traits, worries, and anxieties within a context of multiple inter-personal interactions. Different situations pose greater or smaller threats to people based upon their personality, prior experience life experiences, and overall perception of well-being and safety. Rose et al. [16] noted the differences in staff reports of anxiety and stress from six residential homes for people with IDD. The group homes that conducted more outings in the community, and were generally more community oriented, had higher stress levels reported by the staff. While the programs that had a higher level of interaction between staff and the people with IDD had lower stress levels. From the reports it became clear that stress alone does not guarantee severe anxiety. We all know

from personal experience that different family groupings are more anxiety-inducing than others. In order to appropriately assess the role of stress for an individual, the clinician is required to learn about the context in which that person lives and preferences of environments and activities that person has.

However, before concluding that any person, including someone with IDD, has an anxiety disorder, a clinician should make every reasonable attempt to rule out medical causes of anxiety. These include hyperthyroidism, hypoglycemia, hypoxia, seizure disorders, substance withdrawal states (e.g. alcohol), caffeinism, or even rare tumors such as pheochromocytoma. In adolescence and adulthood, substance abuse may be a hidden factor, because of trying to fit in with age-matched peers. Direct questioning of the individual and care provider may not provide a full or accurate picture, and thus requires further investigation.

Valid diagnostic assessment techniques include gathering historical observations from different people who encounter the patient with IDD in different settings; careful history about onset of symptoms and exacerbating or alleviating conditions; subtle non-verbal communications by the patient when accompanied by staff, guardians, or family; and, opportunities for the patient to report concerns independently (without fear of retribution, e.g. in the case of ongoing abuse by care providers). Learning what activities the patient engages in, and with whom, in what kind of setting and with what frequency – during the week and on the weekends – is essential to develop a full picture of times of function and dysfunction. In other words, sometimes the evaluation may require a number of sessions to build a therapeutic alliance with the patient and a clinical hypotheses for their likely contributory factors to the entire clinical picture.

Anxiety disorders do not have a typical age of onset. Some children, with or without a family tendency toward anxiety, present with generalized anxiety that continues as a lifelong disorder. PTSD can arise at any point during life, and may resolve quickly or continue as a recurrent and intrusive disorder over decades. Situational anxiety is common in children and in elders, as coping mechanisms are taxed and circumstances can be difficult for them to comprehend. In people with IDD, the complication of depending upon others for assistance and support may mask difficulties or may exacerbate the experiences of not feeling adequate control over the immediate environment. As people with IDD age and mild forms of cognitive impairment become more apparent, one of the first symptoms can be increase in uncertainty in making choices and anxiety about anticipated outcomes or any change in their routine. Regardless of age of onset or nature of the anxiety, each individual should receive a comprehensive evaluation and careful assessment for factors contributing to the development of anxious symptoms, and, in older people, particularly those with Down Syndrome, attention to the potential for dementia.

Not speaking and regression, what is being communicated? 28 year-old Tatiana was brought in by her mother for evaluation of unremitting anxiety. Tatiana has been non-verbal since childhood. Tatiana refused to sleep in her own bed, pulled her hair out (even in her sleep), no longer left the house, and was very clingy to her mother. She was referred for evaluation by her primary care physician, who had started Imipramine 25 mg to help with sleep.

Onset of symptoms had been gradual after injuring her thumb in a van's wheelchair lift at her day habilitation program. After the initial trauma was repaired and healed, Tatiana started to refuse to ride in the van, then refused to attend the day program, then refused to leave the house. Tatiana presented on initial evaluation as withdrawn, stiff, worried, with little eye contact and meekly following her mother, almost echopraxic. The tricyclic medication (imipramine) had been prescribed at 25 mg at bedtime for four months, without change in sleep or daytime behavior. This was titrated gradually (increased by 25 mg every 2–4 weeks) to a final dose of 125 mg nightly. Tatiana progressively resumed her old patterns of activity and interests: helping prepare meals at home, attending some Day Programs,

traveling with family out of state to go to baseball games, and riding in public transportation without difficulties. The trichotillomania ceased once the dose of imipramine was raised from 100 to 125 mg/day. A marked clinical improvement was noted at subsequent visits, with spontaneous smiling in agreement with her mother's statements, non-verbal gestures to enhance her mother's reporting of activities, direct eye contact with the examiner, and relaxed normal physical movements. Once clinical stability was maintained, Tatiana was referred to her PCP for maintenance prescriptions. [Intellectual disability, post-traumatic stress disorder and trichotillomania]

Autism and Anxiety

Anxiety may present with more rigid cognitive or behavioral rituals in people with Autism Spectrum Disorders (ASD). Separation anxiety symptoms have been noted in children with autism. Of course, this may not involve increased physical, clinging behavior. Increased symptoms of feeling unsettled, worried or irritated may be expressed by more physical activity, poor sustained attention, or prolonged intense attention, and even aggression. Obsessive-compulsive disorder (OCD) is found so frequently among children and adults with ASD that some authors are suggesting these disorders should be more correctly conceptualized as being on a continuum of clinical expression [17]. Often, people observing an individual with ASD only note the overt behaviors. An increase in frequency or change in severity of dysfunctional behavior merit the clinician's review of the current hypothesis regarding etiology for the observed behavior. Information about the circumstances contributing to the situation need to be systematically assembled. Pragmatically, this means that even if the expression is relatively mild, circumstances must be analyzed for their impact on a person who has a predisposition to being sensitive to specific stimuli (noises, lights, order, etc.…). Since OCD has a high prevalence among individuals with ASD, observers need to be aware when interruptions in routine and order are causing increased internal drive in the person with ASD to control routines as a way to tolerate the increased anxiety.

Just because a behavior is repetitive doesn't mean that the behavior is obsessive or compulsive. It may be a mannerism, learned affectation, tic, or involuntary stereotypic movement. Treatment has to be directed to the underlying cause(s) driving the symptoms or behaviors to be effective. In general terms, mannerisms are relatively impervious to any medication and are not necessarily associated with internal distress. Behaviors that are direct imitation of others, or an attempt to imitate others should be assessed and training provided to render them more functional. For example, the eldest son and child in a family may try to imitate the parents in telling younger siblings what to do, without contributing to household chores himself. The approach would be directed to finding an appropriate setting in which he could be in charge, while learning to allow the parents their authority over the children and to learn that his siblings need a chance to be in charge as well. Involuntary movements and tics can be suppressed with medications, however, given that side effects of these medications can be potentially serious over the course of a person's life, they should be initiated with caution. Treatment for obsessive thoughts or compulsions in people with ASD should be approached with standard clinical practice.

Isn't that his baseline? Anthony was a tall, obese, 45 year old man with autism. He was referred for evaluation of loud vocalizations (between a roar and a grunt), episodic physical violence toward staff and his immediate environment (e.g. car, kitchen), and concerns over drooling noted since he began taking antipsychotic medications. Over the course of 9–12 months of return visits, the antipsychotic medication was reduced (with permission of Anthony's guardian). Repetitive behaviors were noted, such as insistence on wearing certain items of clothing, flicking motions with his hands and liking to manipulate objects in his hands (e.g. grass clippings when being interviewed outside the clinic building).

Further clinical history revealed that he was much attached to routines. He seemed to do better (have less aggression and less violence) when given ample warning that changes in his routine were being made. On the hypothesis that Anthony's behaviors might be manifestations of OCD, a trial of fluvoxamine was started and slowly titrated (at 6-week intervals) to 100 mg twice daily. Once the total daily dose reached 150 mg/day, a marked change in tolerance to activities occurred. Anthony started going out into community settings (e.g. sitting on the local university campus while people walked by); walking off the porch of his house into the yard of his own accord; and, entering the kitchen without hesitation as he no longer had to rock back and forth seven to eight times over the threshold from the hallway into the kitchen before entering. Most notably, he started speaking single and few-word phrases in response to direct questions and conversations with him. The staff who had worked with him for 4–6 years expressed surprise and pleasure, "I didn't realize that it wasn't just the way he was" [Diagnoses: Autism and obsessive compulsive disorder]

Treatment Approaches

Environmental assessment is needed in each and every case of new onset of anxiety spectrum disorders for several reasons. Firstly, known traumatic events are required for the diagnosis of PTSD. Secondly, it is less complicated (and more compassionate) to assess for potentially simple changes in the environment that is disturbing the individual with symptoms. Thirdly, evaluation of present reality provides a role-modeling exercise in assessment of real versus perceived dangers for any person with anxiety. Fourthly, it provides the baseline of experience against which to measure any other therapeutic intervention.

Environmental assessments include a range of settings and factors, from all aspects of immediate sensory experience to the ambient temperature, background sounds, or stress-level. Indoor and outdoor environments have different effects on individuals. Analyzing an individual's response to their environment allow a support team of caregivers to determine how the environment can be modified and whether there are characteristic responses of the individual under certain conditions.

What can a stone do? Zachary, an 8 year old boy with autism, was very unsettled, restless and irritable when he got off the bus from school. Looking for factors that typically induced this behavior, his father asked some questions about the school day and the bus trip home. He could discover nothing out of the ordinary. Since Zachary's shoe lace was untied, his father went to re-tie it and discovered sand in Zachary's sneakers.

He checked further and found a small sharp rock in the other shoe. He promptly and gently cleaned out both sneakers and checked Zachary's feet, which had no cuts. Having the accumulated sand and stone gone from his shoe, Zachary calmly turned his attention to getting his usual after-school snack. [Diagnoses: Autism, with environmental irritant]

Behavioral and cognitive therapy techniques are essential tools in long-term improvement of function in people with anxiety disorders. Cognitive rehearsals increase an individual's awareness of anxious states, providing a framework for assessing real and apparent danger, and implementing behavioral relaxation techniques. Massage therapy has also been demonstrated to have clinical efficacy in reducing anxiety [18]. For example, CBT treatment for severe obsessive-compulsive behavior produced clinical improvement after six months in a 7 year old girl with Asperger's syndrome [19].

Pharmacotherapy has had the most extensive documentation in the literature. (see Table 124.3). Medications include benzodiazepines, antidepressants (tricyclics, serotonin reuptake inhibitors, and monoamine oxidase inhibitors), buspirone, beta-blockers, and even antipsychotics. Placebo response rates are reported as high in

Table 124.3 Related diagnostic categories

Obsessive compulsive disorder
Trichotillomania
Trauma and stressor-related disorders
Post traumatic stress disorder
Exposure to actual or threatened death/serious injury/sexual violence
Direct experience; witnessing in person; learning about close family members; experiencing repeated exposure to aversive details of the traumatic event (e.g. first responders)
Presence of one or more intrusion symptoms associated with the traumatic event: recurrent, involuntary, intrusive distressing memories; recurrent distressing dreams; dissociative reactions (flashbacks); intense/prolonged psychological distress at exposure to cues about the traumatic event; marked physiological reactions to cues that resemble an aspect of the traumatic event(s).
Persistent avoidance of stimuli associated with the event(s)
Negative alterations in cognitions and mood
Hyper-arousal symptoms: irritability, unprovoked anger, recklessness, hypervigilance, exaggerated startle response, problems in concentration, sleep disturbances
Duration is more than 1 month
Causes clinically significant distress
Note if accompanied by depersonalization or derealization
Acute stress disorder
Exposure to actual or threatened death/serious injury/sexual violation
Nine or more of the cluster of symptoms: intrusion symptoms, negative mood, dissociative symptoms, avoidance symptoms, arousal symptoms
Duration of symptoms at least 3 days to 1 month post exposure
Causes clinically significant distress or impairment in functioning

generalized anxiety conditions and low in obsessional conditions [20].

Dosages published in the PDR (Physician Desk Reference) or package inserts must be interpreted cautiously. People with IDD are often more sensitive to the side effects on visual, gastrointestinal, vascular, or vestibular systems. When there is any cerebral atrophy, benzodiazepines, in particular, may cause behavioral disinhibition (Table 124.4).

In general, it is wise for the clinician to "start low and go slow", meaning to start at a dose that does not cause visible side effects and slowly titrate the dosage upwards over weeks, being alert to new onset of disturbing side effects. This allows a demonstration that there is no immediate drug allergy, then to document whether there can be a clinical benefit, or if side effects develop.

It is easiest to use medications for their FDA-indicated diagnoses. However, in practice the clinician will find that there are times that the clinical conditions have not been met before. It is appropriate to have a rationale for non-FDA uses of medications. Sturmey [21] reviewed clinical indications for the use of psychotropic medications, even for behaviors that do not have a clear DSM diagnosis:

- A clearly stated diagnostic hypothesis or drug-responsive target symptom or [systematic] diagnosis;
- The medication corresponds to this hypothesis or diagnosis;
- The person benefits substantially from the medication;
- There are no credible alternatives;
- There are few or no significant side effects of taking the medication [21]

As people age, doses of medications often need to be adjusted to reflect the tissue changes in multiple organs. Hepatic metabolism and renal clearance of medications may be slowed. Having medications for multiple conditions contributes to possible drug-drug interactions as well as increased load on the internal organs to handle the medications. As the brain ages, receptor distribution and responsivity change; balance becomes impaired and reaction times slow. The gastrointestinal tract not only tends to move more slowly, it also absorbs nutrients less efficiently. Integrating between specialists and primary care is very important in the geriatric population with IDD and ongoing anxiety disorders.

Table 124.4 Medications recognized to reduce anxiety

Drug class	Drug name	Dose (mg/day)	Comments
Benzodiazepines	Alprazolam	0.5–6	Half-life 6–14 h
	Lorazepam	2–10	Half-life 12–18 h
	Diazepam	5–60	Half-life 20–36 h
	Clonazepam	1–4	Half-life 30–40 h
Antipsychotics	Thioridazine	12.5–125	Lowest risk for tardive dyskinesia among typical antipsychotics
	Olanzapine	5–10	Atypical; wt. gain, blood dyscrasias
Tricyclics	Imipramine	50–250	Anticholinergic; delays cardiac conduction
SSRIs	Paroxetine	10–40	Anxiety & depression
	Fluoxetine	10–40	Akathisia risk
	Sertraline	25–200	Sedation
	Fluvoxamine	25–200	Give most later in day
	Duloxetine	20–120	Nausea; hepatic inflammation
	Venlafaxine	37.5–300	Approved for GAD
Buspirone	Buspirone	15–80	Slow onset
B-Blocker	Propranolol	60–240	>80 mg, little risk increased hypotensive side effects
Alpha-blocker	Clonidine	0.05–0.3	Multiple dose during day; hypotensive side effects

Alternative therapies and physical manipulation in addition to massage can enhance sensory integration. Acupuncture is a well-established Eastern Medicine therapy. Weighted vests and regularly applied sensory stimulation can assist people with IDD including ASD to tolerate more interpersonal and physical motion in their immediate environments. Eye movement desensitization and reprocessing (EMDR) is easily tolerated by people, including those with IDD and has the benefit of low risk of increased anxiety with long-lasting clinical improvement [22]. Common to all individuals, exercise has been shown helpful for reduction of anxiety symptoms in people with intellectual disabilities [23].

Critical to all therapeutic approaches is careful observation of the effects of the interventions on the person. The focus must remain on assisting the individual to become more functional, not just to suppress inconvenient mannerisms, actions, or verbalizations.

Conclusions

Anxiety is a common human condition. "Signal anxiety" occurs normally to alert the individual that there is something not right with the environment – that a potential danger exists. The efficiency with which we humans can activate this sensory and mental system is very great and assists in many life-saving decisions. Individuals with IDD may have difficulty expressing themselves and therefore anxiety can manifest in unique ways that may be misdiagnosed as maladaptive behaviors and as psychiatric or even psychotic disorders.

Late-life onset of anxiety disorders are underrecognized in the general population, probably more so in those with IDD, and particularly those with ASD. Outcome studies of single mode treatment and combined treatments are urgently needed in this population. These studies are needed to document the rationale for treatment and to learn about efficacious therapeutic modalities. As professionals, we have historically erred on the side of making assumptions about the experiences of persons with IDD. Careful research, with the informed consent of participants, will decrease the need for extrapolation and increase our understanding of what constitutes the most therapeutic modalities in the treatment of psychiatric disorders in people with intellectual and developmental disabilities.

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