

etiology, diagnosis & management of Hypersexuality: a review

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Abstract

Objective: This manuscript reviews the etiology, presentation and treatment options of hypersexuality.

Methods: A MEDLINE search was conducted for English-language articles published over the past 35 years and was supplemented by a search of bibliographies of relevant articles [Compulsive Sexual Behavior, Sexual Addiction, altered sexual preference or Hypersexuality (hetero-, homo-, autosexual)]. **Results:** Hypersexuality is a change in types and increase in frequency of sexual behaviors. The etiology of hypersexuality is complex and involves a variety of physiological and psychological mechanisms. Frontal lobe dysfunction can lead to disinhibition of sexual behavior and hypersexual behavior. Temporal lobe abnormalities, which have been associated with hypersexuality, also seem to be involved in development of various fetishes, paraphilias, and pedophilia. This sexual behavior may also be the result of other neurologic disorders or a side effect of medications. **Conclusions:** Hypersexuality can be idiopathic or the end result of many underlying disease processes. When the underlying cause may be treated, sexually disinhibited behavior is discontinued. Hypersexuality can cause behaviors in patients that are difficult to manage. But pharmacologic methods can successfully control hypersexual behaviors and paraphilias in most patient population.

INTRODUCTION

There is no clear definition of hypersexuality; it is characterized by a change in types and increase in frequency of sexual behaviors. For the purpose of this article, hypersexuality is an increased need, even pressure, for sexual gratification. It may be aimed at oneself or at other people. It may include compulsive masturbation in both public and private places but usually involves an insatiable desire for sexual contact with others. It typically involves inappropriate behavior in relation to others, such as a pattern of lewd or suggestive language, fondling, flirtation, disrobing oneself or others, and overt sexual acts. It may start insidiously and escalate to a chronic problem. It usually includes decreased inhibitions. It is estimated that about 8% of men and 3% of women in the US are sexually addicted.[1]

METHODS

CLINICAL PRESENTATION

There are also a number of specific behaviors which are common to those who struggle with this condition. These behaviors include: compulsive masturbation, compulsive sex with prostitutes, anonymous sex with multiple partners, multiple affairs outside a committed relationship, frequent

patronizing of sexually-oriented establishments, habitual exhibitionism, habitual voyeurism, inappropriate sexual touching, sexual abuse of children, and rape. In addition to these, fantasy sex, prostitution, pedophilia, masochism, fetishes, and sex with animals may also be associated behaviors. It is a combination of these behaviors along with the compulsivity that comprises hypersexuality.

ETIOLOGY OF HYPERSEXUALITY

As is the case with many other psychiatric disorders, the etiology of hypersexuality is complex and involves a variety of physiological and psychological mechanisms. Frontal lobe dysfunction can lead to disinhibition of sexual behavior and hypersexual behavior. Temporal lobe abnormalities, which have been associated with hypersexuality, also seem to be involved in development of various fetishes, paraphilias, and pedophilia. Some have theorized that hypersexuality is a result of drive dysregulation in association with a mood disorder—similar to eating disorders.* Others have suggested that anxiety plays an important role and that hypersexuality may be best conceptualized as a variant of obsessive-compulsive disorder in which anxiety triggers the hypersexuality to temporarily

relieve symptoms; this is followed by further distress and a self-perpetuating cycle of anxiety and obsessive and compulsive behavior is fueled.* Others have suggested that hypersexuality is best conceptualized as an impulse control disorder such as compulsive gambling, kleptomania, and pyromania.*

Head traumas, brain surgeries, and medications have been associated with hypersexuality. Onset of hypersexuality has been associated with frontal lobe lesions, frontal and temporal lesions, temporal lobe epilepsy, dementia, Klüver-Bucy syndrome, multiple lesions in multiple sclerosis, and treatment of Parkinson's disease with dopaminergic agents.

KLÜVER BUCY SYNDROME

The Klüver Bucy syndrome (KBS) is defined by psychic blindness, tendency to orally examine available objects, emotional unresponsiveness, an increase in sexual activity, hypermetamorphosis and difficulties with memory. Most cases of KBS have been associated with a trauma or progressive neuropathological syndrome.*

ETIOLOGY

The behavioral syndromes of KBS observed include aphasia, amnesia, dementia, and seizures. KBS has also been associated with a variety of neurological disorders. These include herpes encephalitis, Pick's disease, Alzheimer's disease, cerebral trauma, cerebrovascular accidents, and temporal lobe epilepsy. Other etiologies include Huntington chorea, hypoxia, hypoglycemia, subarachnoid hemorrhage, and some neuroleptic medication. The most common feature of all etiologies is bilateral mesial temporal lobe destruction or dysfunction. There have been documented cases of KBS resulting from such incidents as heat stroke and encephalopathic illness.*

The symptoms of the Klüver-Bucy Syndrome vary with each individual. In individuals with this syndrome, emotional states may often vary. Some individuals may display blunted affect, apathy, and even pet-like compliance. Others may become demanding and enraged, and at times depressed. Most individuals have visual agnosia which is characterized by the inability to distinguish among friends, relatives and strangers. Auditory agnosia has also been discovered in some cases and occasionally tactile agnosia may be present. Hypermetamorphosis is regarded as consistent exploration of the environment and with subsequent placement of objects into the mouth. Another of the symptoms of KBS is that of altered sexual behavior. Some cases of sexual behavior such

as copulation and masturbation has been documented.[2] However, these cases are infrequent and most cases involve sexual overtures, comments, and attempted physical contact. Some cases consist of aphasia, amnesia, and even dementia in the individuals. A combination of at least 3 or more of the symptoms is typically suggestive of the Klüver-Bucy Syndrome. Carbamazepine treatment has been discovered as a useful agent for eliminating some of the symptoms of the syndrome.[3] Carbamazepine is an effective anticonvulsant in temporal and limbic seizure foci. It is considered as a potent inhibitor of amygdaloid firing.[4]

KLEIN LEVINE SYNDROME

Kleine-Levin syndrome is a rare sleep disorder, involving intermittent episodes of increasing drowsiness with a strong association with lack of sexual inhibition. People affected by this syndrome can spend 10 to 20 hours asleep (hypersomnia) in bed.[5] Episodes may last days to weeks and occur several times per year. The start and end of each attack is usually inconsistent and may be either rapid or gradual.

ETIOLOGY

This syndrome occurs mostly in young males and usually diminishes or disappears after the age of 40.[6] The start of this syndrome is usually spontaneous. The exact cause of Kleine-Levin Syndrome is not yet known.[5] It is thought that symptoms of Kleine-Levin Syndrome may be related to malfunction of the portions of the brain (hypothalamus) that help to regulate functions such as sleep, appetite, and body temperature.[5] It appears to be self limiting with cessation of episodes by early adult life.

Kleine-Levin syndrome is strongly associated with compulsive overeating, lack of sexual inhibition and personality change. Sexual responses include inappropriate sexual advances and overt masturbation, especially in males. Compulsive overeating with rapid weight gain may occur. Personality changes may include irritability, depersonalization, depression, confusion, occasional hallucinations and impulsive behavior.[7] On recovery, total or partial loss of memory (amnesia) for what has happened is usual, although disgust at overeating is common. There may be a short period of depression, or sometimes euphoria and sleeplessness. Between episodes, physical and mental health is usually normal. There appears to be no relationship between Kleine-Levin syndrome and other neurological disorders, such as epilepsy.[8] Amphetamines, which stimulate the central nervous system, have been used to

reduce the frequency and severity of attacks.[9]

DEMENTIA

Hypersexuality as a result of Alzheimer's disease, Pick's disease, or AIDS dementia may be neurological in origin that affects the part of the brain that controls inhibition of impulses and feelings of satiation.[10] The person with dementia may derive little satisfaction from the sexual act and be driven by a compulsive need to initiate sex again and again. Alternatively, the person may simply forget that sex had taken place and initiate a sexual advance soon after having had intercourse. Any cause of dementia that leads to damage to the temporal lobes, or other areas of the brain associated with pleasure, may lead to signs and symptoms of overt hypersexuality.[10, 11]

MANIA

Mania, which plays a role in bipolar disease, mania/hypomania, and cyclothymia, is a mood disorder in which feelings; thoughts, behaviors, and perceptions are altered. The hallmark symptoms of mania include an abnormal, often expansive and elevated mood lasting for at least 1 week. Mania also may include a decreased need for sleep, racing thoughts or a sense that thoughts are "out of control," rapid and often pressured speech, increased goal-directed activities or projects, hypersexuality, reckless behaviors and risk taking, and "delusions of grandeur.[12] Mania results from neurochemical imbalances within the brain.

One proposal suggests that several neurotransmitters acting in unison but with dynamic balance act as modulators of mood states. In particular, serotonin, dopamine, and norepinephrine appear to modify mood, cognition, and sense of pleasure or displeasure leading to sexually disinhibited behavior.

PARKINSON'S DISEASE

HYPERSEXUALITY ASSOCIATED WITH MEDICAL MANAGEMENT

Parkinson disease (PD), which affects the dopamine regulation in the basal ganglia, may be accompanied by a variety of psychiatric symptoms. It is important to distinguish these from psychiatric syndromes that are associated with the treatment of PD. Parkinsonian patients may experience hypersexuality as a consequence of anti-parkinsonian therapy.[13] There was no relation between functional improvement and increased sexuality. Most patients showed some element of dose dependency between

antiparkinsonian drugs and the hypersexual behavior.[14] In addition cases have been reported that patients developed penile mutilation in response to levodopa-carbidopa treatment of Parkinsonism. Approximately half of Parkinson's patients respond to levodopa with an activation of sexual behavior.[14] Neither the prior history of psychiatric illness nor brain damage predisposed to such response on treatment, and in most patients, it was not a part of hypomania or a more diffuse psychiatric disturbance. It is proposed that hypersexuality on antiparkinsonian drugs is consequent to inhibition of prolactin secretion, which leaves dopamine unopposed.[15]

HYPERSEXUALITY ASSOCIATED WITH SURGICAL MANAGEMENT

Surgical management of Parkinsonian patients may lead to symptoms of hypersexuality due to dopamine regulation dysfunction.[16] Case reports of patients with right pallidotomy developed a psychiatric syndrome, including prominent hypersexuality, after surgical implantation of a deep brain stimulator electrode in the left globus pallidus. This demonstrates that patients may be at risk for the development of psychiatric sequelae after pallidal surgery.

Among Parkinson's disease patients who received high frequency stimulation of the subthalamic nucleus, 16% developed remarkable disorders of mood or sexual behavior after the implant.[17]

TRAUMATIC BRAIN INJURY

Head injury comprises traumatic damage to the skull and its contents, from penetration or acceleration/deceleration forces. Clinically, it implies evidence of raised intracranial pressure, loss of consciousness, post-traumatic amnesia, neurological signs of impaired brain function, and/or skull fracture.

Sexually-inappropriate behavior (purposeful use of lewd language, frotteurism, exhibitionism, sadism and rape) occurring for the first time following the head-injury, was consistently associated with evidence of frontal lobe damage. In other patients with frontal lobe syndrome (constricted emotional expression, reduced inhibition, impaired foresight, personality change, usually intellectual impairment), there was total loss of libido as part of global amotivation.[18]

Hypersexual behavior is much less common than hyposexuality following brain injury.[18] There is a correlation with the development of hypersexual states with

the site of a brain lesion in patients with nontraumatic brain injury. Patients with basal frontal lesions or injury to the thalamic and periventricular regions of the right hemisphere are accompanied by a sexual preoccupation in the context of a manic syndrome.[19]

Damage to the temporal lobe causes interictal hyposexuality punctuated by hypersexual arousal after seizures. Similar hypersexuality has been documented following temporal lobectomy for epilepsy. Klüver-Bucy Syndrome, has been described after a gunshot wound to the temporal lobe. Temporal lobe structures also appear to mediate sexual preference. The Klüver-Bucy Syndrome in humans, both atraumatic and following head injury, is usually associated with aphasia, amnesia, dementia and sometimes seizures. It has involved changes in sexual preference more commonly than hypersexuality. For example, a case of safety-pin fetish was reported to be associated with temporal lobe epilepsy. Both the fetish and the epileptic seizures disappeared when the epileptic focus was successfully removed surgically.

Male patients with lesions in or near the limbic system seem to develop pedophilia and uncharacteristic voyeurism, and in heterosexual woman develop homosexual orientation.[20] Limbic encephalitis, characteristic of rabies, is associated with acute sexual disinhibition; a similar picture was seen chronically in a young woman who suffered young childhood encephalitis.[21]

KENNEDY-ALTER-SUNG SYNDROME

Kennedy-Alter-Sung Syndrome (KAS) is an x-linked recessive disease, which is characterized by an unstable nucleotide repeat expansion. The disease causes progressive neuromuscular degeneration of lower motor neurons resulting in proximal muscle weakness, muscle atrophy, and fasciculations. KAS occurs only in males. Patients often show gynecomastia, testicular atrophy, and reduced fertility due to androgen insensitivity. There have been case reports of the disease presenting with hypersexuality demonstrating the clinical varieties of KAS.[22]

MULTIPLE SCLEROSIS

Changes in sexual function are commonly associated with Multiple Sclerosis (MS) and occur in many forms. Hypersexual thoughts or behavior are rare, but can present on the background of persistent cognitive impairment or psychiatric conditions such as mania, whereas isolated hypersexuality is still rarer. The clinical, neuropsychological, electrodiagnostic, neuroimaging and

endocrine findings in an MS patient with episodes of greatly increased libido are described. Imaging and neuropsychological studies indicated frontal lobe dysfunction; hormone studies showed no significant changes. Episodic hypersexuality can be a recurrent transient manifestation of MS. [23]

MANAGEMENT

Hypersexuality is the end result of many underlying disease processes, each of which requires slightly different therapy. When the underlying cause may be treated, as is the case with mania, sexually disinhibited behavior discontinues. Patients with dementia may become sexually disinhibited as cognitive deficits progress. This behavior may also be the result of other neurologic disorders or a side effect of medications used to treat Parkinson's disease. Both hypersexuality and paraphilias can cause behaviors in patients that are difficult to manage. In the event that nonpharmacologic treatments are unsuccessful, many pharmacologic agents may be used to treat hypersexuality. [24]

Several medications have been studied in the pharmacologic treatment of sexually disinhibited behavior. These medications include antiandrogens, estrogens, gonadotropin-releasing hormone (GnRH) analogs and serotonergic agents. Antiandrogens are thought to reduce testosterone levels, which then impairs sexual functioning and eliminates hypersexual behavior. Medroxyprogesterone acetate and cyproterone acetate are the most commonly used antiandrogenic agents.[25] Both of these medications can cause fatigue, weight gain and depression. In one study, patients were given medroxyprogesterone acetate in a dosage of 300 mg per week intramuscularly for one year. Undesirable behaviors were eliminated within two weeks of initiation of treatment, and at one-year follow-up, the effect continued in 75 percent of patients who received the treatment.[25] Another study used medroxyprogesterone acetate in a dosage of 100 mg intramuscularly every other week and increased the dosage to 150 mg intramuscularly every other week, at which point all inappropriate behaviors were suppressed.[26]

Estrogen has not been used often in the treatment of hypersexual behaviors. One study reported a significant reduction in these behaviors in men who received estrogen either orally or in transdermal patches.[27] In another study, a 94-year-old man with dementia was treated with diethylstilbestrol (starting with a dosage of 1 mg per day);

within the first week, his inappropriate sexual behaviors were successfully controlled.[21]

GnRH analogs stimulate the secretion of follicle-stimulating hormone and luteinizing hormone, thereby increasing estrogen and androgen concentration and decreasing testosterone production. To maintain effectiveness, these medications must be used continuously and may cause hot flashes, decreased libido and erectile dysfunction. Leuprolide acetate has been reported to be successful in treating patients with hypersexual behavior or paraphilias.

Because hypersexual behaviors are thought by some to be related to obsessive-compulsive disorder, selective serotonin reuptake inhibitors (SSRIs) have been proposed as effective treatment agents. Others think that the antilibidinal effects of SSRIs explain their effectiveness. Reports demonstrate patients successfully treated with 20 mg per day of paroxetine. Other patients have had good results from treatment with clomipramine, which is a tricyclic antidepressant with some SSRI properties, titrated to a dosage of 150 to 175 mg per day. SSRIs have adverse effects that include nausea and vomiting, headache, fatigue and insomnia. Clomipramine is associated with both anticholinergic effects and orthostatic hypotension, and should therefore be used with caution in elderly patients.

CONCLUSION

Hypersexuality can be multifactorial and while controlled trials have not been done, various pharmacologic methods have been reported to successfully control hypersexual behaviors and paraphilias in most patient population.

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