

An Update on Pathophysiology and Management of Porn Addiction

Drug and non chemical addiction also known as behavioral addiction are two broad categories of addiction. Porn addiction satisfy criterion of addiction including loss of control, preoccupation, withdrawals and perpetuation of activity despite negative consequences. Cue reactivity and craving pathognomonic of addiction are present. Porn addiction and chemical addiction share neural circuitry and modification of neurotransmitters and its receptor .Cocaine addicts have demonstrated identical brain activity watching pornography and drug related cues.

Growing incidence of porn addiction are risk factors of psychogenic ED , loss of libido ,relationship issues retarded ejaculation depression and anxiety .For supernormal condition male naked women is a bad porn.

Method:

Internet search was made at pub med using key words addiction, behavioral addiction, mode of action, porn addiction, dopamine glutamate and etc. This was followed by study of relevant material .

Results

ED rates in men 40-80 was 13% in Europe and in 2011 Ed rate in younger group 18-40 was 14 to 28%. Loss of libido in 16% .

Discussion

Porns especially videos provides supranormal stimulus. It trigger stronger burst of dopamine.Novelty increase reward value and leave long-lasting effects on motivation learning and memory. Porn videos can be matched with person specific fantasies. Presently animated porn can depict most weird fantasies. Searching for perfect material for masturbation satisfy hunting instinct evolutionary tendency of male to have multiple sex partners.

Hypoactivity of dopamine system at nucleus accumbens is demonstrated. Quick habituation in porn addicts in dorsal anterior cingulate cortex has been demonstrated.Result of lack of response to natural sex which now become low grade porn. That triggers searching for hardcore porns to produce same amount of pleasure. Changes occur in glutamatergic input at NA. There is Increased connectivity of amygdala hippocampus frontal cortex . Euphoric input at NA is balanced by dysphoric input from these structures. Excessive consumption of pornography brings about neuroplastic changes in mesolimbic reward center. Delta Fos B play critical role in dendritic plasticity .It mediate effect D1 receptor in nucleus accumbens,It sensitize mesolimbic system to a particular activity. Effect of these changes are higher cue sensitivity to porn. Glutamate circuits also show neuroplastic changes in form of new silent receptors. There is increase of NMDA-AMPA receptor ratio of afferents of nucleus accumbens to prefrontal cortex an area involved in behavioral addiction .Studies in addiction has demonstrated atrophy of areas associated with frontal volitional control and reward salience .

Excessive consumption of pornography brings about neuroplastic changes in mesolimbic reward center. Delta Fos B play critical role in dendritic plasticity. It mediates effect of D1 receptor in nucleus accumbens, it sensitizes mesolimbic system to a particular activity.

Glutamate circuits also show neuroplastic changes in form of new silent receptors. There is increase of NMDA-AMPA receptor ratio of afferents of nucleus accumbens to prefrontal cortex, an area involved in behavioral addiction. Studies in addiction have demonstrated atrophy of areas associated with frontal volitional control and reward salience.

Augmented breast and perfect body shapes are supranormal stimulus in which males prefer artificial to natural sex subject. Tinbergen: increased desire and reduced pleasure. Pornography is novel learning with strong pleasure reward. Porn videos can be matched with person-specific fantasies. Presently, animated porn can depict most weird fantasies. Searching for perfect material for masturbation satisfies hunting instinct. Search for novelty and high degree porn. It satisfies hunting instinct and evolutionary tendency of male to have multiple sex partners.

↓ Hypoactivity of dopamine system at nucleus accumbens. Quick habituation in porn addicts in dorsal anterior cingulate cortex has been demonstrated. Result of lack of response to natural sex. That requires searching and hardcore porns. Changes in glutamatergic input at NA. There is increased connectivity of amygdala, hippocampus, frontal cortex. Effect of these changes are higher cue sensitivity to porn.

TREATMENT

Best approach is to avoid pornography.

There are reports of reversal of erectile function and restoration of libido after cessation of exposure for 8 months. Abstaining from pornography is difficult in circumstances of easy availability.

Relapses in porn addictions are very common. For increased glutamatergic tone. Antiglutamatergic drugs. Lamotrigine, topiramate. These two have also enhanced GABA transmission. N-acetylcysteine because it acts on AMPA receptors. NMDA receptor blocker like memantine can be an option. Antiglutamatergic drugs can help reduce cue reactivity. SSRIs have ego-stabilizing effect. Drugs acting on dopamine like bupropion, cabergoline which activate dopamine receptors. This can enhance response to natural sex and help prevent search for high degree of porn.

Conclusions:

Psychiatrists, and sexologists/addiction professionals should consider porn addiction in their diagnosis and management of psychiatric addiction and sexual dysfunctions.