The Psychoanalysis of a Man with Heroin Dependence: Implications for Neurobiological Theories of Attachment and Drug Craving

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Psychoanalytic treatment of a man with heroin dependence is described. The treatment had two phases. In the first, the patient's experience that heroin use gave him pleasure was tempered by increasing awareness that using heroin was making him depressed, caused a panic attack, threatened his relationship with his girlfriend because she was becoming addicted, and undercut his ability to direct his company. He stopped using. The second phase of the treatment featured annihilation anxiety, which was experienced by the patient with the analyst. This transference was ameliorated by interpretation of early experiences of abandonment and then by an enactment where the patient insisted on controlling the degree of contact with the analyst. Having succeeded in regulating closeness to the analyst in this aggressive manner, the patient began to behave this way in other relationships. The use of opioids to regulate attachment, and the activation of endogenous opioid systems by human contact, is discussed as a likely factor underlying the outcome of the analysis. The fact that the patient craved opioids and had drug dreams for them, and yet was able to use alcohol and marijuana recreationally, is discussed with reference to the ventral tegmental dopaminergic SEEKING system.

Keywords: neuropsychoanalysis; addiction; heroin dependence

Case presentation

The impasse

After a year of psychoanalysis, when the heroin stopped, the transference hit—hard. Guillermo had been off heroin for more than two months. Once a couple of percs, a couple of lines since then, yes; but he'd stopped the heroin. We were both miserable.

> "I don't feel I'm getting anywhere. I'm not getting anything out of this. It's an awful effort to come up with things I want to talk about . . . I have a lack of passion, imagination . . . I'm floating through life. This process has helped me be more aware . . . But I question why I'm doing it. Is it benefiting me? What do I expect out of it?"

I tried suggesting he had trouble continuing his associations because of a fear of depending on me instead of heroin.

> "Dope's been very very good to me. It's been there consistently; it's hurt me, but it's been there."

Actually, I had been dreading his arrival for each of the four days a week that he came to lie on my couch. I had consulted a child analytic colleague about how one handles overwhelming parental abandonment when it comes up in the transference. She had said, "Just live through it." Had she ever seen someone who had been hurt and frightened this badly, and who'd made it through? Had anyone? All I knew was that Guillermo was being retraumatized by my efforts, and I had no idea how it would play out from here.

Guillermo had been addicted to heroin since he was 16. Now he was 40. He had tried every kind of treatment in two countries. How could I help someone who had been unsuccessful with methadone maintenance and various sophisticated addiction specialists and clinics? I was caught inside with him, experiencing annihilation anxiety—that feeling of being a helpless child without a parent anywhere close. His helplessness had become my helplessness. It felt awful.

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History of treatment

Guillermo had first consulted me seven years before he began his psychoanalysis. He was a high-functioning businessman who shuttled between Colombia and the United States. He ran an import business that he had started as a poor immigrant, selling jewelry out of the trunk of his car. He and his wife of 10 years were both addicted. He had been so successful that he had been able to buy $2 million's worth of heroin in 11 years, but it was causing his business to be undercapitalized.

During our initial meetings, Guillermo would inject 8 bags of heroin and then come to his morning psychotherapy hour. There was an emotional coldness when we spoke. I was at his service, and the service he wanted was to get off heroin. He decided that if a drug expert such as me met with him weekly, coached him through the transition from heroin to methadone, and supported him through what became a 9-month taper from 70 mg of methadone per day to zero, he might be successful. This turned out to be true.

Near the end of his taper, when he was using 4 mg of methadone every other day, Guillermo reported the following dreams.

> "I *put a needle in my arm. I got high*. I woke in a panic thinking, "Did I get high yesterday?" I realized it was a dream."

> "The next night *I was at a table with other people. Drugs were being passed out, bags of heroin. I was hesitant, noncommittal. I didn't take it. Somebody said, 'It's not heroin, it's cocaine.' I thought, 'Good, that isn't my drug.' I was glad*."

Guillermo completed his withdrawal. He continued weekly psychotherapy for another four months, then terminated. He also terminated with his wife, who continued to inject heroin.

Two years later he visited for a checkup. His new girlfriend, Maria, was worried that he had a depression. He explained that he had been on the street in Miami and had suddenly been offered heroin, which he used. He had no other occasions of use. There was no depression, and there seemed to be no reason to meet.

In retrospect, he had probably come because he realized that he was on the edge of relapsing to heroin use—because when he returned two years after that, he explained that he had been using occasionally for another year and a half. The frequency of use was escalating to most weekends. He knew he was in trouble.

When Guillermo returned on heroin, I tried once-a-week therapy again. After a few months he disappeared. He returned again another year later, mired deeper into heroin use. Guillermo asked to resume weekly psychotherapy. I refused, with the explanation that I did not want to repeat an unsuccessful treatment. I said I would only agree to see him again if he came four days per week and lie on my couch. Guillermo told me that I was out of my mind, and he left.

He called several times to see if I would see him once a week. I repeated the offer of psychoanalysis. A year after his first request to resume treatment, he agreed to come in four days per week.

Guillermo had been enjoying his weekend use of heroin. After some discussion, he became conscious that between using heroin and recovering from its effects, he was only working halftime. When he was using, the business suffered from a lack of his creative leadership and sales remained flat. When he was not using, sales went up.

He could only get away with missing work because he was the boss/owner of his business. When he wasn't there, his employees carried on. He realized that he would never have allowed any of his employees to behave in the manner that he did.

He was sharing heroin with Maria. His initial attitude was that using heroin was an excellent recreation. But Maria was beginning to develop a hunger for the drug. He decided that this use of heroin threatened her safety.

I administered the Hamilton Rating Scale for Depression after two weekend heroin binges. His score was 19, indicating that he had a substantial depression. In between uses, Guillermo suffered the only panic attack that he had ever had. It was, of course, a terrifying experience.

The consequences of using heroin were becoming apparent. Guillermo took a vacation from work and from heroin. After a month of abstinence, his depression had completely resolved. It was the systematic examination of the consequences of his drug use that allowed Guillermo to become sufficiently ambivalent about using that he stopped.

The transference–countertransference of severely aversive emotional states was the central event in Guillermo's analysis. He had always had a "cool" demeanor, as if he wouldn't tolerate anyone being too close. This emotional distance intensified once he stopped the heroin.

Social history

We knew the general outlines of his childhood. He was born to teenage parents. They had separated when he was a year old. For some reason, his mother had been

ruled unfit, and yet his father had allowed her to be his main custodian. He called Guillermo's mother once in a while.

His father called Guillermo's mother when Guillermo was 3 years old and asked how he was. His mother answered that she had dropped Guillermo off months earlier at an orphanage.

His father then abducted him from the orphanage and left him in the mountains above Bogota with his grandparents. Guillermo had thrived with them, only to be brought back to Bogota to be with his father and his father's new wife when he was 11. He seldom saw his grandparents again.

Guillermo had felt ignored as his father and stepmother tended to their two young daughters. He felt like the Cinderella of the family—all chores and no love. His behavior became more rebellious. Despite high achievement in soccer, and being the national junior karate champion, he became involved with drugs. At 16 he was dropped in downtown Bogota and told that he was on his own.

Guillermo fell in with a group of teenagers who were using heroin. At first, his use of heroin gave him an identity and enabled him to function well despite the lack of human contact. He started using heroin daily at 18. When he was 20, he moved to the United States and started his business. At first, the new setting allowed him to be clean, but by 22 he was back to using heroin daily. He tried two inpatient rehabilitation centers for 21 days each. He was on methadone maintenance for 6 years. But he kept using heroin while he was on methadone. He tried naltrexone daily, but he only lasted a month before he returned to heroin.

By the time he arrived for his first treatment with me at age 33, Guillermo felt chained to using three times a day. He was running out of veins to inject into. His longest abstinent when he began treatment with me had been one month. The two years of abstinence after his psychotherapy/management with me had been his longest period off heroin since he was 22 years old.

Psychoanalytic process

It was only during his psychoanalysis that we were able to see what happened when he stopped using. The loss of heroin as a balm in his interpersonal interactions resulted in a paralyzed state—during his analytic hours, and in general.

> "Here we go again . . . I'm not interested in anything. I'm going through the motions, not just here . . . I'm trying to stay busy . . . Yesterday was a disastrous day, wasteful. I left here and went to bed for four hours. Then the day was shot . . . Everything was dull. I have no sense of purpose, no goal, no meaning, no sense of understanding what I'm doing, no sense of fulfillment, no integrity in anything I'm doing. It's all bland. I may as well sit in a chair and stare at the wall. I can't be bothered to expend energy on anything—what's the point?"

I tried a reconstruction that this was how he felt when he was abandoned at the orphanage and had given up hope of ever being reclaimed by his parents.

> "What's enabled me to survive? It's weird to think that heroin has been a help. It's equally frightening to think, what goes on after? What does a person do to get back in the game?"

He strongly agreed with my suggestion that he was actively trying not to remember the childhood experiences that underlay this state of mind. He described his relationship with his father and stepmother as "murky closeness." This repulsive experience interacting with people made him think that he never wanted a relationship with any human.

I pressed him to tolerate the distress of remembering. I had suggested that not having seen his mother since he was 3 years old contributed to his repression. He had been avoiding her so as not to have her provoke memories of his time with her, and his abandonment by her. I suggested that meeting her might stir things he needed to have available consciously. But then I acknowledged that it might be too much for any person to delve back into horrible experiences.

> "Exactly; there's a wall that comes up all the time. I don't want to . . . My apathy extends to that—I don't want to go through any of it . . . My lack of being able to get close to anyone extends to them. I have no relationship with my mother. My relationship with my father is strained and superficial."

I told Guillermo that if he didn't remember, he was doomed to repeat. He began to bring in memories. He thought of being left with young girls at a pool when he was 2 years old, and nearly drowning. He remembered calling for his mother from his crib when he was 2 and having her boyfriend suffocate him under a pillow until he nearly died; he remembered the crashing sound of his mother wrestling the boyfriend off him.

> "I remember a boarding house. I remember falling in dog shit in the garden. I remember my mother's

dark hair, but I don't remember any interaction with her.

"I believe I was left alone a lot, not cared for properly. I remember my father's story. My mother attempted suicide with pills and was rushed to the hospital. When my father was called he asked about me. No one knew where I was. The police went to the house and found me alone in a room playing with newspapers . . . As for contacting my mother and meeting her—I'm pretty fearful of it."

I asked what the fear was about.

"That emptiness; I don't really know what to ask her. I don't know if I care that much. I don't know if I want to stir up memories. I know it is supposed to help me, but I don't necessarily believe it. What's been done is done. I don't want to go through it again.

"It's the same feeling I have about relationships. I don't want to invest myself. They can get murky. It's a problem with therapy—if all roads lead there, I don't know if I want to go."

I responded, "It sounds like you spent your whole day there yesterday."

"I was in empty space. Maria says I go off and I'm not able to communicate; I'm preoccupied, not present. I think, 'Where *am* I? What am I thinking about?' . . . Whatever I do won't make a difference to how I'm feeling.

How the impasse was broken

Guillermo decided that he needed to be in control of the emotional distance between himself and me. He decided that if he came twice a week, rather than four times, he would have something to say. I was not happy with this change, since I felt we would get through his transference neurosis the quickest and most effectively by continuing with four days per week psychoanalysis.

But I also recognized that his internal experience of the dysphoria of our meeting was different from mine. As bad as it was for me, it was worse for him—more than he could tolerate. I complied with his dictate because I recognized that he had decided that *he* had to be in charge of the distance and closeness in our relationship. This was, of course, a continuation of the dialog we had been having all along about distance and closeness. I had initially insisted on more closeness. He was now forcefully expressing that he needed to regulate this issue. He started to come twice a week.

This negotiation broke the impasse. In the subsequent treatment hours, Guillermo's dysphoria returned again and again, but it responded to my interpretations of the feeling as transference. He began a series of changes in his life. He decided to look up the mother he had not seen in 30 years. He learned of a brother he had never known. He went to Colombia to visit them, and, on becoming acquainted with them, decided to add these relationships to his life.

Guillermo decided that Maria was a dependable partner, but not always stimulating enough. He decided that he needed intense input as a constant aspect of his life, and that if he began to feel abandoned, he needed to engage in some intense interaction like going to a rock concert with a friend, or jetting off to another city to see friends. The solution to his icy, isolated experience of annihilation anxiety was action, control, and optimizing of the stimulation in his environment.

The modulation of distance that he began in his relationship with me was extended to relationships outside. He learned that he had a certain fragility regarding human contact that he needed to keep in mind. Too close, and he felt the suffocating terror that is described above. Too distant, and he felt abandoned. He needed to keep his human contact in the right zone for him by noticing how he felt and aggressively responding to his internal state. And near the end of his analysis, he began to be more relaxed when he was with Maria. He had less of a need to respond so aggressively to manage the distance.

Guillermo continued to use alcohol and marijuana in a recreational way. He had no consequences from the use of either drug. He had never smoked cigarettes.

In one of his last sessions, Guillermo told me a dream.

"*I was looking at an apartment in Bogota that was for sale. They left me in there, said, 'Look around, close the door when you are done.'*

"In the kitchen I found heroin and a syringe. It was a classic drug dream. I couldn't get high. I was trying to put a shot together. It kept spilling or I'd get dirt in it. I thought, 'The owner might be back.' It was a big lot of brown heroin. I took two scoops and put it in my pocket for later. The owner came in right then, and I left."

Guillermo thought of the smell of brown heroin. He remembered how hard it was to dissolve brown heroin

for injection and how they would squeeze lemon into the cooker to help it dissolve. His associations had a quality of reminiscence and of mourning. He thought of being young, how he had felt invincible, how he had enjoyed hanging out with drug dealers and hookers. "It enabled me to remember what the thrill of the whole thing was. That was how it started, the thrill." I interpreted that the craving would go on forever. He thought of the dream as a reminder of why he had been coming to treatment. But soon he would be on his own. Guillermo terminated his analysis five months after our transference–countertransference impasse was broken by his taking control of the frequency of our meetings.

Nine-year follow-up interview

I located Guillermo on Facebook, sent him a note, and had a relaxed conversation with him on a Sunday afternoon. Life is complicated, and this is a summary of the most trenchant items in his news. In terms of work, he had started a new corporation five years earlier. He was successful enough to have five branches in three major cities.

In terms of love, four years after analysis ended he had separated from Maria when he decided that she had alcohol dependence and that there was nothing he could do about it. He had a girlfriend with whom he had lived for three years; they had a daughter, and he had a stepson. He continued some involvement with both his parents.

In terms of health and addictions, he was coping with an autoimmune disease with some annoying symptoms. He was very conscious of his craving for heroin, "It would feel so good to relax." He had used an oxycodone along with "a couple beers" on less than five occasions over the first four years after analysis, and he had not used any opioids for five years. He drank, but moderately, "I'm 50, you know. If I tie one on, I can't function the next day." He said that he used marijuana just before bed occasionally, but buying a small amount would last him most of the year. He could not remember any recent drug dreams.

I submitted to him a draft of this paper for permission to use his disguised identity, and to get his input about whether I had rendered the emotional context and history of treatment accurately. He has read this account, and freely consented in writing (email) to its publication. Our understanding was that publication was important, but that no one should be able to read the paper and know that it was about him. Therefore, any specific information is altered so that the meaning comes through but the patient's identity is protected.

Discussion of neurobiological considerations

Two treatments by the same psychoanalyst have been presented. In the first, a combination of supportive psychotherapy and management, the patient would arrive for weekly hours after injecting heroin. Abstinence-based treatment had not been effective. The patient had been using heroin and methadone for 11 years. One month was his longest period of abstinence. In weekly psychotherapy hours, the patient had a distant demeanor. He asked for support from an addiction specialist while he made his own decision to enter a methadone maintenance program, taper off methadone over nine months, and spend four more months thinking about the necessity of ending things with his still-injecting wife.

There was one asymptomatic use of heroin over the next two years, then a gradual slide back into addiction. The patient asked to return for weekly psychotherapy, and the analyst refused because of his conviction that another psychotherapy would not be effective. The patient initially refused to come four times per week, and he only agreed after another year of continued heroin use.

The central dynamic of the psychoanalytic therapy was aggressive control of relatedness. This dynamic was initiated by the analyst, who demanded Guillermo's presence four times per week as a condition of having a relationship. The initial work was to analyze the defenses of denial so that the patient would stop using heroin. It was only then that in the analytic relationship both patient and analyst were able to see that the function of heroin use had been to diminish the need to depend on others. In a classic transference neurosis, Guillermo recreated in the relationship with the analyst the annihilation anxiety by which he had previously been overwhelmed.

Guillermo realized that he could regulate emotional closeness himself. He used the signal function of annihilation anxiety to adjust relational distance—starting with the distance from the analyst. Having mastered this in the analytic relationship, he extended this mastery to other people. As part of this mastery, he reestablished a relationship with the mother he had not seen in over 30 years.

In a cognitive-behavioral treatment program, patients are told not to use any potentially addictive drugs. In a psychoanalytic treatment, no advice is given. The outcome described—that the patient continued to use alcohol and marijuana without negative consequences—deserves some comment. These comments follow the approach that Solms and Turnbull (2002) have termed the "dual-aspect monism" of neu-

ropsychoanalysis. Empathic, ideographic observations are made via psychoanalysis. These can be correlated with concepts from nomothetic neuroscience. (Similarly, neuroscientists can correlate their findings with empathically derived observations.) This discussion is organized around two themes; attachment and craving. Without being able to prove anything with a single case, but having an unusual outcome, how might this outcome be consistent with what we know about the neurobiology of addiction?

Attachment and the intersubjective properties of opioids

The PANIC system is built into animals so that the young stay attached to nurturant adults during the developmental period, in which they are vulnerable to environmental dangers such as predators (Panksepp, 1998). The PANIC system might be described as a hard-wired need for affiliation. When animals are separated from their mothers during crucial developmental periods, they respond with distress vocalizations (Panksepp, 1998, chap. 14). Both nicotine and opioids reduce distress vocalizations, indicating reduced stress from maternal separation (Panksepp, 1998, p. 268). Many other authors have cited the opioid system as a key aspect underlying relatedness (e.g., Depue & Morrone-Strupinsky, 2005; Insel, 2003; Stanley & Siever, 2010)

How might the PANIC system be modified by opioids? When mother rhesus monkeys were briefly (20 minutes) separated from their babies, the time that they spent clinging to each other after reunion was measured over the next hour. Administering morphine to either mother or baby decreased the amount of time they spent clinging to the other; as if the morphine were supplanting the need to be close. Administering the opioid blocker naltrexone just before the reunion increased the amount of clinging, as if they kept trying the behavior that usually had resulted in opioid stimulation out of a need for something to break the blockade. The authors of this study suggested that the opioid system was regulating the amount of intimate contact the mother and the baby felt that they needed. Similarly, opioids affect social behavior in prairie voles, rats, mice, and dogs (Kalin, Shelton, & Lynn, 1995).

Corticotropin releasing factor (CRF) is increased during distress vocalizations. It is a well-known marker of stress and distress (Panksepp, 1998). Heim, Newport, Bonsall, Miller, and Nemeroff (2001) have shown persistently elevated CRF levels in women who have been traumatized by abuse during childhood. These findings are consistent with earlier findings of this group that maternal deprivation and adverse rearing conditions for animals result in life-long elevations of CRF. Women with childhood abuse are twice as likely to abuse alcohol and five times as likely to abuse drugs (McCauley et al., 1997; Molnar, Buka, & Kessler, 2001). CRF is diminished by opioid administration (Le Moal & Koob, 2007). It is likely that opioids ameliorate the persistent distress that is a frequent sequela of childhood trauma.

The first speculation is that there is a correlation between Guillermo's upbringing and his use of heroin. His case fits with Panksepp's model of the PANIC system and with the effect of opioids on maternal–infant separation. Stein, van Honk, Ipser, Solms, and Panksepp (2007) suggest that the pain of social isolation is mediated by opioid-system function. The object-quality of an addictive behavior has often been noted by psychoanalytic authors (reviewed in Johnson, 1993, 1999)—that is, the use of addictive behaviors as a kind of transitional-object equivalent for use in replacement for human objects. So, heroin might function for Guillermo as a balm for his distress at recurrent separations, his inability to rely on people, and his need to be on his own at 16 despite inadequate parenting up until that moment. This function of heroin could be described as psychological, as a kind of transitional object of addiction during adolescence (Johnson, 1993) and, at the same time, as a way to maintain opioidergic tone when he was completely alone.

Our understanding of the effect of opioids on the PANIC system reinforces the idea that individuals suffering from attachment-related anxiety might be predisposed to opioid dependence. Guillermo's endorphins might have been effectively stimulated by a "reunion" with a caring person. But the fear of a future abandonment—which was based on his early experiences of losing mother, father, grandparents, and then his father/stepmother/sisters' family—rendered deep investment in his relationship with Maria, myself, and other persons, a fear that he preferred not to face. Therefore, Guillermo had a chronic lack of opioid-system stimulation as a result of his social isolation.

Koob and Le Moal (2001; Le Moal & Koob, 2007) have described "opponent process theory" that suggests that for every exposure to opioids that create an antidepressant effect, the brain responds with an opposite set of adjustments in basal state, resulting in gradual deterioration of mood. The reader will notice that since Guillermo's neuropsychoanalytic treatment started during a period when he was using heroin, he went through withdrawal repeatedly while he was

lying on the couch and associating. This withdrawal resulted in depression that was measured at 19 (moderate) on the Hamilton Rating Scale for Depression. The frequency of treatment and his ego strength allowed him to tolerate the physical discomfort without any additional interventions. One might speculate that the decisive source of discomfort that impels relapse during opioid withdrawal is not cramps or physical pains, but the pain of depression that is the result of loss of endorphin input in the PANIC system. The frequency of meeting worked as a counterbalance; I was present. His depression resolved with human contact.

Guillermo had no problem using aggression in most interpersonal situations. He was only unable to be aggressive in the face of what he experienced as potential abandonment, for which we understand opioids have a specific use: they decrease the need for reunion by giving a false signal of the presence of a caring object. Guillermo had failed in treatments that applied their general methods to all patients. Recovery required a psychoanalytic diagnosis of his problem, recurring pain in the transference relationship, and eventual mastery of the original trauma as recreated in the transference neurosis. Amelioration of annihilation anxiety via transference–countertransference enactments was a key aspect of this treatment.

My suggestion is that with Guillermo there was a specific use of opioids to attenuate the pain of separation, which rendered opioids his only drug of abuse. For Guillermo, there was an inability to tolerate aggression in relationships and to use it effectively to manage interpersonal distance. The memory of the traumatic loss of loved objects was an enduring vulnerability that coexisted with an otherwise superior level of functioning. For Guillermo, heroin was his insurance policy against future traumatic abandonment. As he became conscious of how to provide himself with ongoing intense input, stimulation, and a sense that there were people there for him, the need for such expensive insurance dropped away.

Craving

The craving system is distinct from the PANIC system. This neural pathway originates in the midbrain (Hyman, Malenka & Nestler, 2006). Some of its important ascending fibers run from the ventral tegmental area to the frontal cortex (Margolis et al., 2006; Zhang & Xu, 2001). As with any driving system, it receives modulating inputs from many other brain centers such as the lateral hypothalamus and prefrontal cortex, which regulate the intensity of craving (Ikemoto & Panksepp, 1999; Panksepp, 1998).

In animals, the craving pathway drives the acquisition of food, water, and sex (Panksepp, 1998). Freud used hunger as the basis of his understanding of the sex drive (Schmidt-Hellerau, 2001, p. 94). The craving pathway detects that something is "wanted" and that the animal should scan its environment to look for a source of satisfaction, including looking for relationships (reviewed in Johnson, 2008). Panksepp has labeled this pathway the SEEKING system to emphasize its function to provoke exploratory behaviors that locate sources of items in the environment that have survival value (Panksepp, 1998).

The "incentive-sensitization" model of Robinson and Berridge (1993) is a description of the process of "reverse tolerance" within this pathway. With repeated exposure of the ventral tegmental pathway to addictive chemicals, the pathway gradually becomes sensitized. Rats or monkeys who are pretreated with cocaine or amphetamines begin to self-administer these drugs at lower doses than do animals whose brains have not been previously exposed to the chemicals. Animals who are pretreated with amphetamines or cocaine show enhanced place preference (they go to the place where they expect to have the drug administered) for morphine (Robinson & Berridge, 1993, p. 257). The drug experience becomes wanted with the force of a drive (Bejerot, 1972; Shevrin, 1997, 2001). Thus, drug craving is due to an induced hypersensitivity in this system that motivates the individual to find whatever drug that caused the modification of the craving pathway.

While nonaddicted treaters will not have the experience of drug hunger, they may use their own drives for food, water, and sex to increase their empathy of the internal state of their patient. For example, clinicians may remember the last time they decided to try to lose 10 pounds, and how many different ways their mind tried to undermine their conscious goal of weight loss. Just as hunger may be cued by the aroma of cooking food, or libido may be cued by the appearance of an attractive person, drug craving may be cued by the sight of a liquor store, the neighborhood where drugs have been purchased, or simply by having money in one's pocket. These are all "sensitized incentives."

I have suggested that there are two types of addiction; psychological and physical (Johnson, 2003). In psychological addiction, the drug helps the person tolerate helplessness of some kind (Dodes, 1996). This is the basis of "self-medication" (Khantzian, 1985, 1997) with addictive drugs. There is no requirement that the brain be changed in psychological addiction.

The onset of craving signals the beginning of physical addiction (Johnson, 2003). Physical addiction is accompanied by "drug dreams" (Johnson, 2001) such as those described in this case presentation. These are characteristic recurrent dreams in which individuals finds themselves seeking drugs that they crave. Apparently, the initiation of drug dreams is the result of sensitization of the ventral tegmental pathway to drugs that provoke dopaminergic barrages from the ventral tegmentum to the nucleus accumbens; this pathway, with its more rostral connections, is a central structure in the creation of dreams (Solms, 2000). This phenomenon becomes an important confirmation of Freud's assertion that every dream expresses a wish and that the dream borrows from the unconscious "the instinctual force which is at the disposal of the repressed wish" (Freud, 1900, p. 564).

This case presentation shows an unusual outcome. Guillermo had no problem managing his use of alcohol and marijuana. These drugs were employed recreationally and were never abused. This final outcome was not anticipated at the start of his treatment. I had anticipated that he would become abstinent from all drugs and from drinking. The reason for this is that once a single drug has recruited the craving system, other drugs are added with less exposure (Robinson & Berridge, 1993).

However, the analyst does not dictate outcomes and is deeply respectful of the thinking of the patient. This outcome requires some explanation, as it is highly unusual that patients complete treatment for opioid dependence without becoming abstinent from all drugs. From a general addictions perspective, use of other drugs and alcohol would be 100% unacceptable for a patient who has heroin addiction.

Use of heroin to manage annihilation anxiety: PANIC system modulation

It may be that for many addicted individuals, sensitization of their craving pathway begins with the adoption of cigarette use. In the United States, the average age of onset of nicotine use is 12½ years of age (Horgan, 2001). As discussed above, once an animal has been exposed to one drug that sensitizes the SEEKING pathway, the threshold for self-administration of a second sensitizing drug is lower. Young people in the United States who use cigarettes before the age of 15 years are 80 times more likely to use illegal drugs (Lai, Lai, Page, & McCoy, 2000), as if their brains are more vulnerable to self-administration of a second drug. Patients who do not smoke cigarettes remain abstinent at far higher rates than do those who are detoxified from alcohol or opioids and then continue to smoke (Stuyt, 1997), as if nicotine were constantly fueling the craving for other alcohol or opioids.

This combination of having a very specific psychological use for opioids to treat fear of abandonment, and not ever becoming addicted to cigarettes, might explain why Guillermo was able to use alcohol and marijuana. These drugs were not useful for his separation-induced distress. There was no nicotine-induced craving to add other drugs. Therefore, alcohol and marijuana were used only for recreational purposes.

The suggestion is that Guillermo will always crave heroin. He will always be prone to relapse to heroin use both because of craving, and because heroin has a specific use to sooth his fear of abandonment. However, he has not had to abstain from alcohol and marijuana because they have not recruited his craving pathway. Drinking alcohol or smoking marijuana does not compensate for any psychological problems, and they appear not to turn on his craving for heroin. The hope is that his ability to manage relationships that was a product of psychoanalysis will allow enduring good functioning and enduring abstinence from heroin.

One goal of this report is to show the dissection of the psychological representation of separate neural systems in psychoanalysis—a useful product of a neuropsychoanalytic approach. If the reader has agreed with the author, then we can see that psychoanalytic treatment of a disorder of the PANIC system left the patient able to tolerate craving in his SEEKING system without using heroin for nine years after the termination of his psychoanalysis. The other goal of the report is to show how psychoanalytic treatment of a patient with heroin and methadone dependence was successful when many other treatments were not, because of the ability of the psychoanalytic method to diagnose and treat the underlying disorder of attachment.

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