MIND TO MIND
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Carol Wiley Cassella, M.D., Editor

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Beneath the Furrowed Brow: A Ketamine Journey in the ER

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The first thing I remember is that luminous torrent of schoolbus yellow that came pouring in and swept me away. Then against that backdrop some sort of geometric design emerged in a different color. Blue? Orange? Lines? Zigzags? Before the pattern could register, the whole display folded in on itself, and I went careening into waves of other colors. It felt like I had been sucked into an enormous kaleidoscope and was bouncing endlessly from one massive mosaic to another. There was also a vaguely audible static, a chaotic buzzing noise that added to my sense of being trapped in some unknown realm that was deeply frightening.

This didn't feel like dreaming. I still knew where I was and what I had been doing when this started—or at least, where my *body* was and what *it* had been doing. Whatever this strange territory was, and however muddled my thinking had become, my consciousness itself seemed continuous and uninterrupted. This was not like falling asleep. And what I was experiencing felt too vivid and tangible to be anything as ephemeral as a nightmare.

As time passed and the journey continued, it became increasingly clear to me that whatever was happening was permanent. There was no escape. I remember briefly pondering whether this is what happens when you die, but somehow the question seemed moot. If there was no going back, what did it matter whether this counted as dying? I recall also wondering whether the old reality, which was beginning to recede from memory, had ever really existed. Maybe an awful truth was being revealed to me: that *this* was what had always been real, and the rest had been some sort of temporary illusion.

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Although it now seemed far removed, I knew that moments earlier I had been lying on a bed in the hospital emergency department, being treated once again for atrial fibrillation resulting from a leaky mitral valve that was soon to be surgically repaired. These episodes of a-fib had become almost routine, and since medications had never succeeded in restoring my heart to normal sinus rhythm, electrocardioversion had become the treatment of choice.

Procedural sedation with propofol had worked well for me in previous cardioversions, but today the treating physician had chosen to use the dissociative agent ketamine, primarily because my blood pressure was low and ketamine wouldn't have the depressant effect on cardiovascular function that propofol has. Ketamine also had a shorter half-life, and my recoveries from propofol had tended to be unusually slow. The doctor had informed me that a small percentage of patients have some hallucinations and agitation as they emerge from ketamine, but that such reactions could be relieved quickly with IV anti-anxiety medication. Given my relatively pleasant experiences with propofol, I hadn't been concerned.

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As I began to emerge from sedation, I found myself no longer tumbling through the cosmic kaleidoscope, but I was still in a dissociative state. The first "real-world" sensations I recall were auditory. Two people in the room were talking to each other, but their voices reverberated strangely and seemed to repeat themselves in a continuous loop. I knew they were speaking in words, but I couldn't understand what the words meant.

Gradually I found myself able to see the room, but it was dark and distorted. The safety rails on the bed were oversized, and appeared to be closing in over me. Although my visual point of view was basically accurate—I was seeing the room from the place where my head was actually located—for some period of time I continued to doubt that I was back to being part of the physical world. Like Scrooge visiting Christmases past, present, and future, I was a ghostly observer in a scene that didn't include me. Despite having found this tantalizing window into the old reality, I still wasn't convinced I would make it all the way back.

The first words I understood were from my nurse, saying "OK … we started at 10:02 and now it's 10:16." Was he talking to me? Had I asked him something? Apparently not, because now I tried to speak and realized that I couldn't. I looked down the length of my body and found my feet. I wondered if I could make them move, but was too frightened to try.

I lay still for several minutes as the room slowly brightened and sounds became more familiar. I wondered how much more time had passed, but at first didn't dare try to raise my arm and check my watch. Finally I gathered my courage and attempted to move my feet, which wiggled obediently despite still not feeling like they belonged to me. I raised my arm slightly to look at my watch. It was 10:25. I heard the nurse, who had apparently been standing next to the bed monitoring my progress, ask me how I was doing. After some initial struggle forming a word, all I could say was, "Wow."

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Postscript: In the days that followed, my need to understand this strange chemically-induced odyssey led me to both the medical literature and the blogosphere. What I found there provided insights but also raised questions about my experience.

First, I found that the content of my "bad trip" was not unique. Recreational ketamine users have a term—"the k-hole"—for the kind of dysphoric dissociative state that I experienced. The most adventurous illicit users seem to want to flirt with the k-hole, but not fall into it.[1,2] I found striking similarities to my experience in online posts by recreational users reporting bad ketamine trips,[1,2] and in a classic first-person account by anesthesiologist Robert Johnstone[3] published in 1973. These authors report psychedelic visual phenomena similar to mine ("Think: World of Tron with unbelievable colours and shifting patterns," writes one online post),[1] and they echo the subjective sense of irreversibility that I found so terrifying. As the same poster writes, "I thought the normal world had disappeared forever and I REALLY thought I had died."

The fact that adverse psychological reactions occur in some patients undergoing ketamine sedation will not surprise anesthesiologists or emergency physicians, since phenomena such as nightmares, hallucination, and agitation have been said to occur in as many as 30% of patients.[4–6] Several authors have reported successfully preventing dysphoric reactions through pre-sedation suggestion (*e.g.,* a presurgical interview in which patients chose a pleasant topic to dream about).[5,7,8] In my case, it seems plausible that some kind of further education about ketamine's effects prior to sedation might have been beneficial, but I question whether coaching framed in terms of *dreaming* would have helped me.

I've also learned that the untoward effects of ketamine are often mitigated chemically by combining it with propofol or a benzodiazepine, administered either prophylactically along with ketamine, or as needed when negative reactions occur.[5] I can imagine that adding a benzodiazepine in advance might have been effective in my case, but I wonder how the need for a PRN administration after the fact could possibly be ascertained in a situation like this, since at the time of my greatest distress I was neither moving nor speaking. As the ER doctor later told me, he had no hint of what I was going through, other than my slightly furrowed brow.

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