This Is How a Psychedelic Molecule Shapes Your Final Moments of Consciousness

DMT is a mysterious neurochemical that may ferry us to the great beyond, some researchers say.© Getty Images

In **Greek mythology** it was Charon, the grim ferryman, who paddled souls across the rivers Styx and Acheron to the underworld. But the real-life ferryman transporting our human souls between the realms of the living and the dead may have been inside us all along, science suggests.

DMT (N,N-dimethyltryptamine)—the mysterious psychedelic molecule that occurs naturally in plants, animals, and possibly the human brain—plays an intriguing role in guiding consciousness at the moment of death, research shows. A 2018 study in the journal *Frontiers in Psychology*, for instance, hypothesized that DMT could induce a state as intense as an actual near-death experience (NDE), suggesting that it may play a role in the vivid euphoria many survivors report at the threshold between life and death.

A more recent study, published in 2023 in the same journal, compared the experiences of a person who had both a near-death experience and a trip on 5-MeO-DMT, a powerful psychedelic cousin of DMT secreted by the glands of the Colorado River toad. The researchers' goal? To find out whether the two experiences overlapped—and, if so, whether DMT could be the brain's own way of ferrying us into the great beyond.

"There is good indirect evidence to suggest that DMT is released in greater quantities at the point of death in the human brain. We have evidence from animal brains, but we don't have any direct evidence from humans. However, we can infer that this also happens," says David Luke, PhD, a coauthor of the 2023 study and an associate professor of psychology at the University of Greenwich in London.

The researchers found that experiences with the psychedelic drugs had a lot in common with NDEs, "offering insights into altered states of consciousness," says Pascal Michael, PhD, another coauthor of the 2023 study and a psychology lecturer at the University of Greenwich. "These include mystical experiences characterized by feelings of unity and timelessness, ego dissolution where a sense of self merges with a larger reality, and encounters with entities or presences."

While the idea of DMT as the chemical behind NDEs is compelling, it's just one part of a much larger puzzle. According to Luke, animal studies have shown that their brains at the point of death undergo a cascade of neurochemical changes, including massive releases of serotonin and noradrenaline—brain chemicals that help regulate mood, emotions, and stress. Scientists have inferred that the same occurs in the human brain. In other words, Luke suggests, DMT could indeed act like a psychopomp—a creature, spirit, or deity that transports the newly deceased to the afterlife. But the story of death doesn't end there.

Michael explains that the brain's biological state during an NDE might shape the experiences differently than psychedelics do.

"The neurobiological context of NDEs—potentially involving hypoxia [lack of oxygen in the body or brain], hypercapnia [too much carbon dioxide in the blood], and endogenous neurochemical release—might differ from the effects of 5-MeO-DMT," he says. This distinction could influence the experience, with NDEs more likely to evoke autobiographical and relational memories tied to loved ones. "By contrast, 5-MeO-DMT tends to induce archetypal or abstract encounters, perhaps due to its intense focus on ego dissolution and the broader existential dimensions of experience," Michael says.

In his seminal book, *DMT: The Spirit Molecule*, Rick Strassman, MD, a psychiatrist and clinical researcher, attributed spiritual connotations to DMT by virtue of the engrossing and transcendent experiences it's reported to induce. Since then,

some scientists have ramped up the conversation by finding that DMT may be released in large quantities at death. Despite that, some still say we know nothing about the role of endogenous DMT.

Enter the pineal gland hypothesis. It states the human pineal gland—a tiny, pea-shaped structure in the brain that produces melatonin, the sleep-regulating hormone—produces DMT in large amounts before death. This idea remains controversial.

"While intriguing, the role of endogenous N,N-DMT in humans remains largely speculative, particularly the idea that it is produced by the pineal gland in the brain," says Amy Reichelt, PhD, a neuroscientist and an expert in neurodegenerative disease. DMT is structurally similar to serotonin and has been detected in human blood, urine, and cerebrospinal fluid, but most of the research is in animal models. "They can have distinctly different ways of producing neurotransmitters and metabolizing compounds," she says.

In any case, the notion that a molecule within us might serve as the final boatman across the rivers Styx and Acheron is as haunting as it is fascinating, opening a Pandora's box of questions about the greatest mysteries of existence.