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PM INTERVIEW
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HOW ARE THE HUMAN BRAIN AND MIND CONNECTED? TO FIND ANSWERS, A RESEARCHER IS CONDUCTING THE LARGEST-EVER MEDICAL STUDY INTO NEAR-DEATH EXPERIENCES TO ANSWER A PHILOSOPHICAL QUESTION: IS HUMAN CONSCIOUSNESS REALLY A PRODUCT OF OUR BRAINS? *By Amber Angelle*

Near-infrared scanners can track brain function at the point of death. Blue areas are not getting enough oxygen.



- Q** Your Awareness During Resuscitation study is gathering data on the experiences of heart attack patients between death and resuscitation. What are you trying to find out?
- A** Studies have shown that 10 to 20 percent of patients who are resuscitated report some kind of cognitive process during cardiac arrest. [During cardiac arrest a victim loses blood pressure; with no oxygen reaching the brain, patients die within minutes.] The big question is how can you have thought processes—or, for that matter, an out-of-body experience—when your brain isn't working?
- Q** How do you use brain scanners to gather clinical data on what might be going on in a dying person's mind?
- A** Currently we monitor a patient's electroencephalograph (EEG), which measures the brain's electrical activity, but we have very little idea of how well we're managing to get blood into the brain. The In-Vivo Optical Spectroscopy system (above) tells us how much oxygen is in the blood that is getting into the brain during resuscitation. If we can show that patients who report cognitive processes had oxygen levels of less than 15 percent during resuscitation, we will have support for the idea that the mind and consciousness are actually working when the brain is shut down. When we're presented with extreme circumstances and the brain doesn't function like normal you suddenly see that, perhaps, the mind itself is very subtle, immeasurable on any scan.
- Q** Do people say that you are investigating the paranormal?
- A** If a patient has an experience when they are dying I don't see why that is considered paranormal. The mind and the brain are interrelated. If I stick a pin in your hand, a brain scan will show blood-flow changes in areas of the brain as you feel pain and become upset. Also, when your mind is disordered it impacts the biochemical processes in your brain. But why should brain cells be able to generate a feeling of awareness? It's like saying the TV shows you watch are created by your TV set.

Parnia is a fellow in pulmonary and critical care medicine at Weill Cornell Medical Center in New York.