Vegetative State May Be Caused by Brain Cooling, New Study

New research suggests that the widespread use of below body temperature air in breathing tubes, which appears to be common in nursing homes, may produce small drops in the brain's temperature which may prevent recovery of brain injured patients. The introduction of cool air directly into the trachea of intubated patients cools blood to the brain and appears to disrupt its neurochemistry in ways that may inhibit recovery or cause negative effects. The authors believe their findings may point to a simple way of increasing the chance of recovery for thousands of patients.

Springfield, IL (PRWEB) August 3, 2006 -- The odds of recovery from brain injuries and vegetative states may be dramatically improved simply by restoring normal brain temperatures, according to a new medical theory published in the August issue of Medical Science Monitor.

The study was inspired by the case of 53-year-old woman who suffered a heart attack and oxygen deprivation of the brain. In the course of a few days she slipped from consciousness to coma and then to a vegetative state. For the following thirty-one months she was receiving oxygen through a tube in her trachea.

But one day it was noticed that the oxygen in the tube was over thirty degrees below body temperature, due to an equipment setup that appears to be common in many hospitals and nursing homes. Acting on the speculation that such chilled air could not be good for the patient, the tube was removed. One month later, the woman came out of the vegetative state and was verbal and able to respond to questions.

Inspired by this case, the authors began to investigate the physiological link between lung temperatures and brain temperatures. They found that chilled tracheal air will produce chilled aortic blood which will in turn produce a significant drop in brain tissue temperatures.

Because the path from the aorta to the brain is short, a drop in brain temperatures may occur even though the core body temperature otherwise appears to be normal. But even a small drop in the brain temperatures can produce important deviations in neurochemistry and the endocrine system. These changes, the authors suggest, may not only inhibit recovery they may even produce additional problems, including symptoms commonly associated with the poorly understood condition called a "persistent vegetative state."

To access the potential impact of their findings, the authors surveyed a sample of hospitals and nursing homes in the larger New York metropolitan area. Most health care facilities reported they do not heat the oxygen given to non-responsive, intubated patients.

The authors suggest that paying closer attention to intubated air temperatures, or removing intubation tubes as soon as practical, would pose no risk to patients and may well produce a significant increase in the rate of recovery from brain trauma. They also propose numerous strategies for future research.

Just last month, two other teams of researchers reported findings that have given new hope to the families of minimally conscious patients. One study found that the insomnia drug zolpidem may help patients recover from a vegetative state. The other reviewed brain scans of Terry Wallis, who emerged from a minimally conscious state 19 years after a brain trauma, and found evidence that the human brain may be more capable of repairing...
itself than previously thought.

The full text of the article is available free on line at Medical Science Monitor's website, www.medscimonit.com.


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