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HEALTHY CHOICES FOR MIND AND BODY

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HOW DO YOU KNOW IF YOU ARE IN A PERSISTENT VEGETATIVE STATE?

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Determining level of brain function is not an exact science. Neurologists can reach different conclusions with subtle evidence that does not clearly fit neat categories.

Think of the brain and body as having three levels of function. **Higher cortical function of the brain**, performed by the brain cortex (large cerebral lobes) - responsible for thinking, acting with volition, and determining our intentional responses to incoming stimuli from the 5 senses.

Brain stem activity, performed by areas of the brain that are in the middle and at the base of the brain - maintains certain automatic bodily functions, such as breathing, swallowing our own saliva but not food, sleeping and waking, uttering random noises, shedding tears, maintaining temperature control and exhibiting certain withdrawal reflexes and eye movements.

Spinal cord and bodily organ function, which determine muscle tone, non-purposeful twitching and tendon reflexes, and the auto-pilot function of the heart, liver, kidney, bowel, etc. An intact spinal cord may cause spinal reflexes and random movements due to electrical impulses within the cord, even when the brain (stem and cortex) is dead. Note that breathing is a brain stem, not an automatic organ function.

Brain death is defined as "death based on the absence of all neurologic function". All higher cortical and brain stem function has irreversibly stopped. These patients can not breathe, move, think or perform any purposeful function. There is no feeling of pain or suffering. The patient would die without a ventilator - As long as the ventilator provides oxygen to the body, the heart and other auto-pilot organs will function, in spite of neurologic death.

Continued ventilation and medications do not interfere with the brain death determination. A neurologist tests the patient for evidence of any brain function. An EEG tests for brain electrical activity, without which the brain is dead. Brain death *is* death.

Coma is not brain death. It means loss of enough brain function to be non-responsive. Higher cortical function is reduced. There may or may not be permanent damage. There may or may not be brain stem injury. The chance of recovery depends on the nature and severity of injury and duration of coma. A person with concussion-induced brain swelling could 'wake' after three days with normal function. Another, with severe stroke, might never regain consciousness.

Vegetative state means loss of all higher cortical function. The patient has no purposeful response, but retains some or all brain stem activity. Breathing, making noises, swallowing, and random eye movements may look like intentional responses, but are not.

Persistent vegetative state is a vegetative state that has lasted a 'long' time. Younger people generally have more chance of recovery than do older people. The chance of recovery greatly declines after 4 weeks in the absence of any return of function. If slight improvement has occurred at 1-3 months, gradual improvement may continue, but rarely to a state of significant cognitive function. If there has been zero sign of returning function after 6 months, the chance of any recovery is vanishingly small.