Persistent Vegetative State: Definitions and Decisions

Persistent Vegetative State:

First described in the literature by Jennett and Plum in 1972, the vegetative state is best described as a clinical condition in which a patient is unaware of his self and environment. There is no evidence of voluntary behavioral responses to visual, audible, or noxious stimuli, and patients show no ability for language comprehension or expression. Patients are considered to be “awake but not aware.” According to William James’ definition of consciousness, which requires both wakefulness and awareness, patients in PVS are considered to be unconscious. However, unlike coma, a patient has continued sleep-wake cycles and complete or partial functioning of the hypothalamus and brain-stem. Patients in PVS continue to breathe on their own, but cannot perform the voluntary actions of chewing and swallowing. These patients can survive months to years with nutrition and hydration as well as good nursing care.

Diagnosis:

The diagnosis is made primarily clinically. EEG plays a small role in diagnosis, showing polymorphic delta and theta waves, similar to coma. Small studies using PET imaging show considerably less (50%) glucose metabolism in the cerebral cortex. But, the sources I found considered PET imaging to be a research tool and not well-documented enough to be used routinely in diagnosis. Vegetative state lasting greater than one month is considered to be a persistent vegetative state. The term “permanent vegetative state” is considered to be a prognostic term implying a very small chance of any recovery, and is not a separate diagnosis.

Etiology:

The etiology of the vegetative state is most often head trauma and anoxic encephalopathy. CNS infections, degenerative diseases such as Alzheimer’s and CJD can also be implicated. Congenital developmental malformations are other causes. There are estimated to be 10,000 to 25,000 adults and 4,000 to 10,000 children in the United States who are in a persistent vegetative state.

Recovery of function and survival:

The likelihood that a patient in a persistent vegetative state recovers consciousness and function depends on the etiology if the initial insult. In a study of 169 patients in a persistent vegetative state at one month due to non-traumatic causes, the patients’ courses were tabulated at 3 months and at 6 months. At 3 months, 46% died, 47% were in a continued vegetative state, 6% had severe disability, and 1% had moderate disability. At 6 months, of those remaining 28% died at one year and 72% continued in a vegetative state. None regained any awareness. If the vegetative state continued to 12 months, recovery is extremely rare and almost always involves severe disability.

In a study of 267 patients in persistent vegetative state due to traumatic or non-traumatic cause, the three-year and five-year mortality rates were 70% and 84%, respectively. In separate studies, there has been long-term survival in the vegetative state, up to 41 years. However, the estimated chance of living longer than 15 years is 1 in 15,000.

Comparison to related conditions:

There are important distinctions to draw between the persistent vegetative state and several other conditions.

PVS: Absent self-awareness, intact sleep-wake cycles, normal respiratory function, decreased cerebral metabolism (but not absent), and prognosis which is variable depending on the causative factors.

Coma: Absent self-awareness, absent sleep-wake cycles, depressed respiratory function, decreased cerebral metabolism (but not absent), and characterized by full recovery, or PVS, or death in 2-4 weeks.
Brain death: Absent self awareness, absent respiratory function, absent cerebral metabolism, no recovery.

Locked-in syndrome: Present self-awareness, intact sleep-wake cycles, quadriplegia, normal EEG and normal cerebral metabolism, unlikely recovery with persistent quadriplegia.

Dementia: Variable self-awareness, intact sleep-wake cycles, progressive decline.

Decisions regarding care:
The American College of Physicians statement regarding irreversible loss of consciousness is as follows:

“Persons who are in a persistent vegetative state are unconscious but are not brain dead. Because their condition is not progressive, patients in a persistent vegetative state are not terminally ill. They lack awareness of their surroundings and the ability to respond purposefully to them. The prognosis for these patients varies with cause. Some physicians and medical societies believe that there are no medical indications for life-prolonging treatment or access to intensive care or respirators when patients are confirmed to be in a persistent vegetative state. They conclude that these patients cannot experience any benefits or suffer any discomfort and that all interventions should therefore be withdrawn. However, many patients or families value life in and of itself regardless of neurologic state. For these reasons, goals of care should guide decisions about life-prolonging treatment for patients in a persistent vegetative state in the same manner as for other patients without decision-making capacity”

Feeding Tubes

The key issue of using feeding tubes revolves around the following question: Is a feeding tube a medical intervention (subject to the four ethical principles of patient autonomy, beneficence, non-maleficence, and justice, with the option of holding or withdrawing)? Or does a tube provide food and water obligated to any person who is not terminally ill? The 1990 Supreme Court decision *Cruzan v. Director, Missouri Department of Health* was decided (5-4) in favor of considering tube feedings and fluids to be a medical intervention, and thus optional. Groups such as the American College of Physicians, the American Medical Association, and the American Academy of Neurology have agreed with the *Cruzan* decision. On the other hand, feeding tubes have long been considered inexpensive, readily available, non-burdensome “ordinary treatment” and is morally obligatory.

Bibliography:


