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Central Pontine Myelinolysis

National Institute of Neurological Disorders and Stroke (NINDS)

Source

National Institute of Neurological Disorders and Stroke (NINDS). *Central Pontine Myelinolysis Information Page*.

Central pontine myelinolysis (CPM) is a neurological disorder that most frequently occurs after too rapid medical correction of sodium deficiency (hyponatremia). The rapid rise in sodium concentration is accompanied by the movement of small molecules and pulls water from brain cells. Through a mechanism that is only partly understood, the shift in water and brain molecules leads to the destruction of myelin, a substance that surrounds and protects nerve fibers. Nerve cells (neurons) can also be damaged. Certain areas of the brain are particularly susceptible to myelinolysis, especially the part of the brain stem called the *pons*. Some individuals will also have damage in other areas of the brain, which is called *extrapontine myelinolysis (EPM)*. Experts estimate that 10 percent of those with CPM will also have areas of EPM.

The initial symptoms of myelinolysis, which begin to appear 2 to 3 days after hyponatremia is corrected, include a depressed level of awareness, difficulty speaking (dysarthria or mutism), and difficulty swallowing (dysphagia). Additional symptoms often arise over the next 1-2 weeks, including impaired thinking, weakness or paralysis in the arms and legs, stiffness, impaired sensation, and difficulty with coordination. At its most severe, myelinolysis can lead to coma, "locked-in" syndrome (which is the complete paralysis of all of the voluntary muscles in the body except for those that control the eyes), and death.

Although many affected people improve over weeks to months, some have permanent disability. Some also develop new symptoms later, including behavioral or intellectual impairment or movement disorders like parkinsonism or tremor.

Anyone, including adults and children, who undergoes a rapid rise in serum sodium is at risk for myelinolysis. Some individuals who are particularly vulnerable are those with chronic alcoholism and those who have had a liver transplant. Myelinolysis has occurred



in individuals undergoing renal dialysis, burn victims, people with HIV-AIDS, people over-using water loss pills (diuretics), and women with eating disorders such as anorexia or bulimia. The risk for CPM is greater if the serum (blood) sodium was low for at least 2 days before correction.