

AN EXPLANATION FOR "INEXPLICABLE" ACTS?

Anneliese Pontius has written extensively on the phenomenon of senseless crimes committed by previously nonviolent people who generally have no memory of committing their violent acts. Her theory is that these individuals suffer from seizures originating in the limbic system, a "primitive" part of the brain involved in emotion, memory, and survival instincts (see related article, [*Crime Times*, 1996, Vol. 2, No. 4, Page 6](#)).

In a new study, Pontius reports that, in many cases, these acts of violence appear to stem from chronic, intermittent stimulation of the vagus nerve occurring in vulnerable individuals. The vagus nerve runs from the brain to the gastrointestinal tract, and studies show that repeated stimulation of the nerve can provoke seizures. (Controlled stimulation, on the other hand, is now being used as a means of reducing seizures in epileptic patients.)

In her new study, Pontius evaluated six unselected, consecutively referred males referred to her after they had received felony convictions for out-of-character aggressive episodes. All of the subjects had histories of head injuries, three had histories of seizures, one had an EEG consistent with seizures, and two exhibited cortical atrophy.

Pontius discovered that five of the six men had histories of recurrent nasopharyngeal infections, and she hypothesizes that these infections caused intermittent mild stimulation of the vagus nerve. "Supportive evidence shows that experimental vagus stimulation has the most excitatory impact on hippocampus and amygdala," she says, "which are also the most susceptible to limbic seizure kindling by intermittent subthreshold stimuli."

"Aggression in temporal lobe epilepsy and limbic psychotic trigger reaction implicating vagus kindling of hippocampus/amygdala (in sinus abnormalities on MRIs)," Anneliese A. Pontius and Marjorie J. LeMay, *Aggression and Violent Behavior*, Vol. 8, No. 3, May-June 2003, 245-57. Address: Anneliese A. Pontius, Harvard Medical School, 25 Shattuck Street, Boston, MA 02115.