
4-Hydroxy-4-phenylcaproamide (1), at high doses or rates of intravenous injection depressed the ventral root reflexes elicited by nerve or dorsal root stimulation. The direct and synaptic ventral root waves and the antidromic dorsal root wave evoked by intraspinal stimulation were also depressed. Similar effects were produced when 1 was applied topically on the cord dorsum. At 80 mg/Kg and 8 mg/Kg/min, the spinal reflexes and the synaptic wave were facilitated for 4 to 6 h, but the direct and antidromic waves were depressed. Intracellular recordings from motoneurons showed that 1 injection produced: hyperpolarization that lasted several hours, short lasting (<20min) facilitation of both, excitatory postsynaptic potential and inhibitory postsynaptic potential as well as spike-like potentials that were triggered by excitatory postsynaptic potential even though the neuron was hyperpolarized. Spike-like potentials may reach the threshold for full spikes. Our results suggest that the spinal depression result from hyperpolarization of motoneurons and the initial facilitation appears to be presynaptic. The late facilitation may be produced by spike-like potentials. The compound 1 does not appear to mimic the actions of gamma amino butyric acid in primary afferents fibers and motoneurons.