

CSF Substance P, CCK and VIP—Laboratory and Clinical Correlates

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Concentrations of substance P (SP), cholecystokinin (CCK), and vasoactive intestinal polypeptide (VIP) were measured by radioimmunoassay in 331 CSF samples from neurologically normal, abnormal, and preoperative pain patients. Lumbar CSF was obtained at the time of diagnostic lumbar puncture, intrathecal chemotherapy, or spinal anesthesia according to

protocols approved by the Human Studies Committee. Samples were immediately frozen and held at -35°C until assay. Serial dilutions of CSF samples were assayed and showed ligand displacement curves that were parallel to those obtained with the respective antisera for VIP₁₋₂₆, SP₁₋₁₁, and CCK₁₋₈. For statistical analysis, data were converted to log₁₀. Specific ob-

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servations included (1) positive correlation between each pair of the peptides ($p < 0.001$); (2) negative correlation between CCK and total CSF protein ($p < 0.0001$), but no correlation among SP, VIP, and protein; and (3) positive correlation between each of the peptides and CSF red blood cell count ($p < 0.05$).

Clinical findings included (1) curvilinear correlations between each peptide and age ($p < 0.001$); (2) no significant difference in a variety of neuropathies and demyelinating and other neurologic diseases; and (3) decreased SP in orthopedic pain patients ($p < 0.01$).