G2 Natural Central Nervous System (CNS) Causes of Death: A Ten Year Retrospective Review (1994-2003)

Gregory L. Hess, MD, University of Arizona Health Sciences Center, 1501 North Campbell Avenue, PO Box 245108, Tucson, AZ 85724-5108; and David C. Winston, MD, PhD, Pima County Forensic Science Center, 2825 East District Street, Tucson, AZ 85714*

The goal of this presentation is to explore the incidence and specific demographic information (age/sex) for natural CNS deaths in Pima County, AZ from 1994-2003.

This presentation will impact the forensic community and/or humanity by reviewing the incidence and demographics for natural CNS deaths in Pima County, AZ from 1994-2003. Forensic pathologists and other forensic scientists may find this information useful to compare with the incidence of natural CNS deaths in their own practice.

Sudden unexpected natural deaths of CNS etiology are not an uncommon finding in many medical examiners offices. The authors performed a retrospective review of 262 cases of natural deaths attributed to a CNS etiology over a 10-year time period to compare the cause, incidence, and demographic profiles of such cases. Natural deaths were sorted from 11,152 total autopsies performed at the Pima County Forensic Science Center between 1994 and 2003. These natural deaths were then screened for a primary CNS cause of death (COD) excluding systemic diseases with CNS manifestations if the CNS pathology could not be determined to be the primary mechanism of death. COD and demographic information on each case was then tabulated with particular attention to the top three causes of death by year. Primary CNS deaths accounted for an average of 7.2% of natural deaths in this ten-year review. The majority of these (28% of CNS totals) were attributed to unexpected death in patients with a clinically documented seizure disorder with a slight male predominance (1.6:1 male: female ratio) and an average age of 38 years. The second most common cause of death (27% of CNS totals) was hypertensive stroke. The average age of this population was older as compared to the patients with seizure disorders and with a slight male predominance (average age 59 with a 1.4:1 male: female ratio). Ruptured aneurysms in various CNS anatomic locations were the third most common cause of death (16% of CNS totals) occurring in middle age with a male predominance (average age 48 with a 1.5:1 male: female ratio). Infectious meningitis, most commonly of bacterial or viral etiology, was also a frequent cause of CNS death (14% of CNS totals with average age 35 years with a 1.3:1 male: female ratio). Infectious etiologies were the most age variable COD ranging from 4 months to 69 years of age. Other, less frequent, COD, in order of descending frequency, included primary brain neoplasm, idiopathic intracerebral hemorrhage, congenital anomalies, progressive neurodegenerative dementias, and idiopathic encephalopathies. These findings are felt to be representative of a typical forensic autopsy population with an over representation of sudden death (seizure disorder, stroke, and aneurysm) and under representation of chronic CNS pathology (neurodegenerative dementias, neoplasm) than what would be expected in the general population.

Central Nervous System, Natural Death, Review

 ** Presenting Author*