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G55 Do Centenarians Die Healthy? – An Autopsy Study

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The goal of this presentation is to assess the prevalence of common causes of death and demographic variables in a selected population of centenarians.

This presentation will impact the forensic community and/or humanity by underlining the need for more baseline data of the elderly which can be obtained only by more and well-performed autopsies.

There is a common conception that the very old die of old age, but the prevalent cause of death in this age group remains poorly studied.

Only few necropsies have been performed in patients dying after age 100 years and, little attention has been made on the clinical and morphologic features observed in these oldest old. For that reason we reviewed 34,858 consecutive autopsies done during a 15yearperiod (1988 to 2002) at the Institute of Forensic Medicine, Vienna, Austria.

We focused on cases who met our working definition of sudden natural death in very old people: Unexpected or unexplained deaths of non-hospitalized persons over the age of 100 years, which are apparently due to natural causes". In particular, all persons who had not consulted a physician within 10 days before death were included and autopsied.

Of the 30 study corpses, 9 were men and 21 were women; all were Caucasian. The age of these out-of-hospital patients ranged from 100 to 108 years.

Nine persons lived alone in their homes without periodical care from relatives or welfare centers. Another 11 persons also lived alone, but were regularly cared for by neighbors, relatives or welfare workers, 10 lived with at least one family member.

Sudden natural death occurred in all cases in private homes, and in 35% of these cases while sleeping. Resuscitation was attempted in 53% of the cases. More than 63% (n = 19) of those who died were described as having been previously healthy.

About 30% had cardiac antecedents such as stable angina pectoris. Three persons had a history of myocardial infarction. Other pre-existing conditions were hypertension (16%), diabetes mellitus (10%), respiratory (10%) and gastrointestinal disorders (5%).

A total of 22% of the men and 29% of the women had a body mass index exceeding normal range.

Cardiovascular diseases accounted for almost three quarters of the deaths (n = 21); 23% (n = 7) of the centenarians died of respiratory illnesses, and 7% (n = 2) of gastrointestinal disorders.

Myocardial scars or focal myocardial fibrosis were detectable in 2/9 men and in 4/21 women, who died due to cardiac disorders; 3 men and 10 women had acute myocardial infarcts. Calcification of the mitral annulus and of the aortic valves were present in 80%; 15% of the calcified valves were anatomically stenotic.

All deceased had extensive aortic sclerosis, mainly focused in the abdominal part. In all 30 corpses the aorta was dilated in its transverse and longitudinal planes, with aneurysm formation in 5 cases, 2 resulted in fatal rupture.

Four cases of sudden death were caused by pulmonary embolism emerging from the left femoral veins, 3 patients died of bacterial pneumonia.

A gastric ulcer caused perforation with acute diffuse peritonitis in one 106year old man, and in one 100year old woman.

Centenarians succumb to disease, they do not die of old age. Undiagnosed conditions in the oldest old present a clinical challenge that increases with the patient's age. However, despite progress in diagnostic technology, confirmation rates of death causes have not changed much. Therefore, as the age of death rises, it is important to preserve and foster postmortem examinations, the most reliable source of medical evidence.

Centenarians, Autopsy, Cause of Death