G2 Inconsistent Certification of Obesity in Natural Deaths With the Presence of Obesity-Related Comorbidities

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After attending this presentation, attendees will gain an understanding of the inconsistent inclusion of the term "obesity" on the death certificates of natural deaths determined to be due to obesity-related illnesses, such as coronary artery atherosclerosis, hypertensive heart disease, and diabetes. It will also be suggested that objective criteria, like the Body-Mass Index (BMI) of the deceased, are not routinely utilized during the process of death registration.

This presentation will impact the forensic science community by heightening its awareness of the lack of standardization of the inclusion of obesity on the death certificate, a practice that has received relatively little debate during a period of rising obesity and obesity-related illness in the United States. With improved practices in the certification of obesity, the forensic science community can better inform the public of the number of deaths due to obesity.

Obesity is implicated as a significant risk factor for several types of chronic disease, and the rise in the number of obese persons in the United States has been accompanied by a rise in obesity-related morbidity and mortality.[1,2] Although obesity is a known risk factor for many causes of natural death, obesity is listed as a cause of death relatively infrequently, as shown by a study in England.[3] The forensic science community lacks evidence that a similar trend is occurring at medical examiner's and coroner's offices in the United States. Additional studies in this area are likely to lead to a standardized system of certifying obesity, which would improve the accuracy of the vital statistics that rely on information contained on the death certificate.

The death certificate records of the Hamilton County Coroner's Office (HCCO) in Cincinnati, Ohio, from the period of 2007 through 2008 that were ruled natural for manner of death were used for this study. Cases with coronary artery disease, hypertensive heart disease, myocardial infarction, pneumonia, sepsis, and diabetic coma or ketoacidosis indicated on part I of the death certificate were included in this study. Any cases with a mention of alcohol-related disease on the death certificate were excluded. Only cases with decedents between the ages of 25 and 69 years old were included in this study. Overall, 288 death certificates issued from the eight forensic pathologists on staff at the HCCO were inspected for the presence or absence of the term "obesity" in either part I or part II of the death certificate. The Body Mass Index (BMI) was calculated using the formula: (weight in kilograms)/(height in meters).[2]

Of the 288 death certificates used in this study, 125 were of decedents with a BMI of 30kg/m^2 or greater. The BMI range for the first to fifth quintiles were as follows: (1) 30.0-31.7kg/m^2; (2) 31.7-33.9kg/m^2; (3) 34.0-38.1kg/m^2; (4) 38.2-42.5kg/m^2; and, (5) 42.6-60.0kg/m^2. No death certificates in the first and second quintiles of BMI included "obesity." The term "obesity" was included on one death certificate in the third quintile, 11 in the fourth quintile, and 19 in the fifth quintile.

According to the study results, a BMI of 42.5kg/m^2, or the upper limits of the fourth quintile, serves as the threshold above which obesity" is included on the death certificate in the majority of cases. All decedents in the fifth quintile have class III obesity, yet 20% of death certificates in this quintile did not have "obesity" listed on the death certificate. Moreover, less than 50% of the death certificates in the fourth quintile mention "obesity." The results suggest that death certificates of decedents with similar BMIs vary with regard to certification of obesity at the HCCO, and this is possibly due to under-utilization of BMI in death registration. A greater consistency in the utilization of the BMI would result in more death certificates containing the term "obesity" and, therefore, vital statistics that are based on those death certificates would more accurately depict the number of obesity-related deaths.

References:

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3. Duncan ME, Goldacre MJ. "Certification of obesity as a cause of death in England 1979-2006." European Journal of Public Health. 2010;20(6):671–675.

Obesity, Death Certificate, Body Mass Index

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