G59 Correlations for Expected Heart Weight

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After attending this presentation, attendees will understand the use of correlations with height, weight, and Body Mass Index (BMI) to determine expected normal autopsy heart weight as well as variations in expected heart weight by sex and appreciates the deviation from expected heart weight as an indicator of heart disease.

This presentation will impact the forensic community and/or humanity helping to define abnormal heart weight in sudden and unexpected deaths and will explore the epidemiology of heart disease and the effect of BMI on heart weight.

After attending this presentation attendees will understand that the correlation of height, weight and Body Mass Estimation with expected normal heart weight is important to identify subtle hypertrophy, especially in the analysis of sudden and unexpected deaths with minimal disease. Standard references define normal ranges for heart weight at autopsy and there are published correlations of autopsy heart weight with body weight and body length. Body Mass Index (BMI) is commonly used as an indicator of obesity and obesity has been correlated with heart disease. This study explores the relationship of heart weight at autopsy to BMI as calculated from length and body weight data measured as part of the routine autopsy procedure.

This study reviewed reports of all autopsies performed in 2004 at the Richmond District Office of the Chief Medical Examiner. Data collected from each case included age, sex, race, height, weight, heart weight, and presence or absence of anatomically identifiable heart disease. Cases were excluded where there was extensive decomposition, burning, or other body destruction that could invalidate the height, body weight or heart weight data. While the collected data contained decedents of all ages, the study focused on adults between 18 and 65 years of age.

Correlations of heart weight with body weight in patients without identifiable heart disease were generally good and in agreement with previously published data. Similar correlation lines for patients with heart disease were significantly different with the expected bias toward increased heart weight. Comparison of correlations for men and women also produced significant and expected differences. Surprisingly, correlations of heart weight with BMI were much worse than the correlations with body weight.

Body Mass Index (BMI), Heart Disease, Heart Weight

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