



### H46 Patterns of Bruising in Cases With and Without Alcohol Abuse

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The goal of this presentation is to increase the scientific support for conclusions about injury patterns and to better interpret blunt force trauma in cases of alcohol abuse.

This presentation will impact the forensic science community by reviewing the basis for interpreting bruising in cases with and without alcohol abuse.

This presentation will be an example of how the dead teach the living by examining the distribution and extent of bruising in cases of medicolegal autopsies with and without alcoholism and testing the hypothesis that in alcoholism bruising is more extensive. Such information is important when reaching conclusions concerning the distribution of blunt force trauma in both the medicolegal autopsy setting and in the setting of clinical forensic medicine (e.g., examining live victims or suspects of crimes).

In Scandinavian countries, forensic pathologists are concerned with both medicolegal death investigations and clinical forensic medicine. Of importance in both branches is separating injuries inflicted during everyday life and those inflicted by violent assaults, for example.

Since the forensic pathologist gains experience of the normal distribution of injuries in the medicolegal autopsy population, this knowledge can be used to interpret injuries in the living. Generally, it is assumed that chronic alcohol abusers have a heavier burden of blunt force trauma compared to a population without such abuse.

To objectively classify the level of alcohol consumption, blood levels of Phosphatidylethanol (PEth) in whole blood were used to classify the studied population into three groups: low, intermediate, and high consumers of alcohol. PEth is a marker of alcohol consumption registering alcohol intake during approximately two weeks preceding the death and is routinely used at the forensic medicine unit in Lund, Sweden. Cases in which PEth had been analyzed were identified and the autopsy reports were then studied for information regarding bruises. Bruises were counted, their location noted, and, from the original data collected, information about their size and if they were recent was also noted.

In this study, 118 consecutive forensic autopsy cases were identified in which a PEth blood sample analysis had been ordered, beginning in February 2017 and working backward to October 2015. After excluding traffic accidents, homicides, decomposed cases, and cases not finalized, this resulted in a total of 101 cases that were included in the study.

The association between the three categories of PEth (low, moderate, and high alcohol consumption) and having more than three bruises on the body was analyzed using logistic regression. No conclusive associations between the PEth concentration and the numbers of bruises were observed; however, observing only the point estimates indicated a tendency of a U-formed association between the number of bruises and the PEth categories, in which the most number of bruises were observed in the high consumption category and the least number of bruises were observed in the medium consumption category. It appeared as if female sex was associated with an increased number of bruises. No conclusive association between age and number of bruises was observed.

In conclusion, no statistical support for the hypothesis that alcoholics in a medicolegal autopsy setting are subjected to more accidental blunt force trauma reflected in the number of bruises compared to non-alcoholics could be identified in this study. The results may be produced by low statistical power and selection bias, and the study should be extended to include a consecutive and larger population. Nonetheless, this study provides an example of how to increase scientific support for arriving at conclusions regarding patterns of injuries in both the medicolegal autopsy setting and in clinical forensic medicine.

#### Medicolegal Autopsy, Clinical Forensic Medicine, Bruises