H38 The Effect of History and Context on Consensus in Diagnosis of Patterned Injuries of the Skin

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After attending this presentation, attendees will have a better appreciation of how history and context affect medical diagnosis in forensic pathology.

This presentation will impact the forensic science community by emphasizing the importance of history, context, and the errors that will be created by decreasing access to these parts of the diagnostic process through regulatory standards.

In a previous study, a survey-based analysis of pathologist diagnoses of patterned injury was performed. Subjects were provided with photographs of "classic" injuries and asked to diagnose the lesion in the absence of history or context. There was a relatively low diagnostic consensus among respondents. A second survey suggested that the disparate answers were not due to a strong belief in different diagnoses, but instead reflected how the respondents dealt with ambiguity.

A third survey was created that asked participants to evaluate patterned injuries of the skin, but provided history and contextual information. Email invitations were sent to all members of the National Association of Medical Examiners (NAME) with email addresses on the roster, a total of 1,098. Two hundred sixty-nine surveys were started and 192 surveys completed.

The mean consensus per question with history provided was 91.3%. The distribution was skewed to the left because of two outlier questions; the median consensus was 97.9% with a standard deviation of 0.13, and standard error of the mean of 0.23. This is in contrast to the results of the third tier of the first survey (without history), which provided a mean consensus of 76.2%, median of 80%, standard deviation 0.18, and standard error of the mean 0.03.

The average confidence per question was 90.3, median 92.7, standard deviation 6.48, standard error of the mean 1.16. This compares to the results of the first survey, which provided a mean confidence per question of 58.7 (out of 100), median 56.1, standard deviation 15.2, and standard error of the mean 2.4. The mean confidence was 90 out of 100, median 91.6, standard deviation 8.02, and standard error of the mean 0.57. This compares to the first survey, which provided a mean of 73.2, median 79.0, standard deviation of 14.8, and standard error of the mean of 14.8.

A possible training effect was tested among those who took the first survey. There was no significant difference in consensus answers between those who had participated in the first survey and those who had not.

These studies demonstrate the importance of history in the diagnosis of patterned injury of the skin. Denying history produces significant lack of consensus, primarily due to issues of ambiguity rather than actual differing diagnoses. Providing history increased the degree of consensus by 20 points to near-complete agreement. This study and those of medical decision-making suggest that data hiding will decrease diagnostic accuracy.

Medical Inference, History, Medical Imaging