As a graduate statistics student, I would analyze this question by carefully considering the relationship between transformations and statistical properties:

The answer is (D) The mean of the logged values does not equal the log of the mean.

This is a critical point in statistical analysis when working with log transformations. When we apply t-tools (like t-tests or confidence intervals) to log-transformed data, our inferences directly apply to the means of the logged values. However, when we want to interpret these results on the original scale, we encounter a fundamental mathematical property: Jensen's inequality.

Due to Jensen's inequality, for a concave function like logarithm:

log(E[X]) ≠ E[log(X)]

This means that the log of the mean is not equal to the mean of the logs. When we exponentiate our results to return to the original scale, we're actually obtaining geometric means rather than arithmetic means of the original data. This creates interpretation challenges when researchers want to make statements about arithmetic means of the original measurements.

Options A, B, and C are incorrect because:

- (A) While true that median(log(X)) = log(median(X)) for monotonic transformations like logarithms

- (B) Log transformations often make right-skewed data more symmetric, not less

- (C) The symmetry of original data doesn't directly address the transformation interpretation problem