Anatomical variation or pathological feature? Conditioning of the clinical diagnosis in the ex-ante and ex-post forensic evaluation setting. A prospective cross-over pilot study

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Medical malpractice often implies the interpretation of anatomo-radiological findings of uncertain clinical value [1]. Crucial importance is played by the perspective adopted in the evaluation of documentary data, which must take an ex-ante approach, consisting in ideally placing himself in the same circumstances of place and time of the facts analysed, reproducing that informative scenario [2]. On the other hand, the daily-observed ex-post perspective included information collected after the time of the events being analysed [3].

We aimed to identify any predictive factor of interpretative errors committed by analysing ex-post an anatomo-clinical imaging of alleged medical professional responsibility.

We submitted selected radiograms being doubt for anatomical variation versus disease (5) or negative (5) to 15 Urologists, who received (or not) collateral information related to the clinical epilogue.

The interpretative errors made by analyzing the images lackingof any additional information proved to be significantly lower than what was observed in the presence of collateral information about the epilogue of the clinical event (13.3% vs. 28.3%, p <0.05). The type of information provided represents the only independent predictive variable (p <0.05) for the occurrence of interpretative error with respect to the real significance of a given radiogram. The ex-ante interpretation showed a sensitivity of 86.2%, specificity of 90.3%, positive predictive value 89.3% and negative predictive value 87.5%. The ex-post interpretation showed a sensitivity of 76.7%, specificity of 73.3%, positive predictive value of 74.2% and negative predictive value 75.9%. Collateral information about the epilogue of the clinical event increased the relative risk of making an interpretative error by 4.4 times, and the total removal of the risk factor itself would reduce the interpreting errors by 18.4%.

Compared to the ex-ante approach, by ex-post analysis we introduce an interpretative distortion shifting the evaluation towards the epilogue communicated, perceiving an anatomical variation as a pathologic feature and vice-versa.

This study confirms the emerging role of forensic clinical anatomy in defining the critical issues related to the evaluation of alleged medical professional responsibility and suggesting the compensatory methodological adjustments to prevent any possible distortion in the assessment.

References

[1] Kamin et al. (1995) Ex Post is different form Ex Ante: determining liability in hindsight. Cornell Law Faculty Publications. 646(1): 89.
[2] Semelka et al. (2010) Objective determination of standard of care: use of blind readings by external radiologists. AJR Am J Roentgenol. 195(2): 429.
[3] Hawkins et al. (1990) Hindsight: biased judgments of past events after the outcomes are known. Psycol Bull. 107(3): 311.

Key words

Anatomical variation, medical malpractice, forensic clinical anatomy, radiology.