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Author: Thomas Filleron

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ACCEPTED MANUSCRIPT

Comparing sensitivity and specificity of medical imaging tests when verification bias is present: the concept of relative diagnostic accuracy

Thomas Filleron[1],

1. Institut Claudius Regaud, IUCT-O 1 avenue Irène Joliot Curie 31059 Toulouse. France

Corresponding Author:

Thomas Filleron
Institut Claudius Regaud, IUCT-O
1 avenue Irène Joliot Curie
31059 Toulouse
France
Tel: : +33 (0) 531 155 865
e-mail address: filleron.thomas@iuct-oncopole.fr

Highlight for review:

- Verification bias has frequently been encountered in medical imaging studies when disease verification by the gold standard is dependent on test results.
- When both test results are negative, a gold standard may not always be performed
- The concept of relative accuracy which permits to remove the bias when only patients with at least one positive test receives the gold standard.

Abstract

Medical imaging plays a key role in all stages of cancer management. In evaluating a new imaging modality, the optimal design involves a comparison with standard test results as well as a gold standard, such as a pathological evaluation to determine disease status. However, when both the standard and experimental test results are negative, a gold standard may not always be performed, especially if it involves an invasive and/or costly procedure. In this situation, true disease status cannot be verified, which creates an estimation problem for sensitivity and specificity. The aim of this article is to present the concept of relative accuracy

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