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Title

Explaining differences in diagnostic test accuracy between primary and secondary care: an IPD meta-analysis

Priority 1 (Research Category)

Secondary data analysis

Presenters

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Abstract

Context: Most diagnostic tests are evaluated in secondary care (SC). The sensitivity and specificity of medical tests vary between primary care (PC) and SC settings. This is due to diverse influences from factors at patient, test, study, and setting levels. Understanding these factors is critical for effectively interpreting and ultimately implementing diagnostic test results across settings.

Objective: This study aims to identify factors explaining the variation in diagnostic test accuracy between PC and SC using three clinical examples.

Study Design and Analysis: An individual participant data meta-analysis will be conducted. Explanatory factors that might affect sensitivity and specificity, including patient-level clinical variables and study-specific variables (risk of bias elements) will be identified through literature review and expert input. Factors will be analyzed using logistic regression analyses followed by bivariate random effects analyses.

Setting or Dataset: The study utilizes datasets from both SC and PC settings concerning three clinical examples: fecal calprotectin (FC) for organic gastrointestinal disorder (GID), D-dimer for pulmonary embolism (PLE), and D-dimer combined with the Wells score for PLE.

Population Studied: The population comprises patients suspected of organic GID or PLE.

Outcome Measures: Sensitivity and specificity in the different settings.

Results: Data for FC include 1,554 patients (prevalence (prev) 11%) in PC and 764 patients (prev 41%) in SC. Preliminary results from FC show a pooled sensitivity of 89% (95%CI 81-94) in PC and 76% (95%CI 70-81) in SC, with respective specificities of 84% (95%CI 53-96) and 93% (95%CI 87-96). The D-Dimer and D-Dimer+Wells datasets have 3,174 patients (prev 9%) in PC, for SC there are 17,052 (prev 20%) for D-dimer and 15,531 (prev ±20%) for D-dimer+Wells. Sensitivities for D-dimer+Wells score were 96% (95%CI 86-99%) in PC and 98% (95%CI 96-99) in SC, 49% (95%CI 42-57) in PC and 37% (95%CI 33-42) in SC. Age, symptoms (e.g., for FC: abdominal pain and change in bowel habit; for D-dimer: symptoms of deep vein thrombosis, Heart rate >100 beats/min), reference standard, and study biases will be evaluated. Final results are anticipated before summer.

Conclusion: This study provides insights into factors explaining diagnostic test accuracy across settings, potentially facilitating the identification of SC diagnostic tests that could be prioritized to be evaluated in PC.