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ABSTRACT

Title of Abstract : Accuracy of Visual Inspection with Acetic Acid for Cervical Lesions: A Systematic Review and Meta-Analysis
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Background : Cervical cancer is the most common cancer and a main cause of death among women in low-and-middle-income country. A simple screening method using Visual Inspection with Acetic Acid (VIA) has been recommended. However, the diagnostic accuracy of this test varies across populations and clinical contexts.

Objective : To evaluate the diagnostic accuracy of VIA compared with the gold standard (histopathology) for detecting precancerous lesions in the cervix.

Research Methods : A systematic search was conducted in PubMed, Scopus, and ScienceDirect from 2015 to 2025 following the PRISMA guidelines. A total of 764 studies were identified and only 15 studies were included, with a total sample of 3,237. The risk of bias was assessed using the QUADAS-2. Studies reporting diagnostic outcomes (TP, FP, TN, FN) were included in this review. The data were analysed using a bivariate random-effects model with HSROC curve.

Results : The overall analysis showed a pooled sensitivity of 68% (95% CI: 55-80%) and a specificity of 79% (95% CI: 66-88%), indicating moderate diagnostic accuracy across studies. The HSROC curve was positioned toward the upper-left region, reflecting higher specificity and improved model stability. Subgroup analysis revealed that VIA in HIV-negative women demonstrated the best diagnostic performance sensitivity 78%, specificity 85%. When VIA was used as a primary test, it exhibited the most balanced accuracy sensitivity 75%, specificity 80% compared with VIA as a triage test.

Conclusion : VIA test demonstrates moderate diagnostic accuracy for detecting cervical precancerous lesions, the best performing in HIV-negative populations and when used as a primary test.

Keyword : of Visual Inspection with Acetic Acid; VIA test; Cervical Cancer; Precancerous Lesions