

عنوان مقاله:

The study of molecular genetics and gene therapy, diagnosis and prevention of cervical cancer in pregnant women

محل انتشار:

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خلاصه مقاله:

Background: Opportunistic screening in hospitals is widely used to effectively reduce the incidence rate of cervical cancer in China and other developing countries. This study aimed to identify clinical risk factor algorithms that combine gynecologic examination and molecular testing (paired box gene 1 (PAX1) or zinc finger protein 582 (ZNF582) methylation or HPV16/18) results to improve diagnostic accuracy. Methods: The delta Cp of methylated PAX1 and ZNF582 was obtained via quantitative methylation-specific PCR in a training set (57 CIN2- and 43 cervical intraepithelial neoplasia \geq grade 3 (CIN3+) women), and the individual and combination gene sensitivities and specificities were determined. The detection accuracy of three algorithms combining gynecologic findings and genetic test results was then compared in a randomized case-control study comprising 449 women referred for colposcopic examination by gynecologists in the outpatient department of Xiangya Hospital between November 2011 and March 2013. Results: Significant association was observed between CIN3+ and methylated PAX1 or ZNF582 in combination with HPV16/18 (OR:15.52, 95 % CI:7.73-31.18). The sensitivities and specificities of methylated PAX1 or ZNF582 combined with HPV16/18 for CIN3+ women were 89.2 and 76.0 %, or 85.4 and 80.1 %, respectively. Of the three algorithms applied to cohort data and validated in the study, two indicated 100 % sensitivity in detecting cervical cancer and a low rate of referrals for colposcopy. Conclusions: These algorithms might contribute to precise and objective cervical cancer diagnostics in the outpatient departments of hospitals in countries with high mortality and low screening rates or areas with uneven resource distribution. Electronic supplementary material: The online version of this article (doi:10.1186/s13148-016-0232-3) contains supplementary material, which is available to authorized users

کلمات کلیدی:

Biomarkers, Algorithm, DNA methylation, HPV16/18, Cervical cancer, ZNF582, PAX1

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