博士論文（要約）

An epidemiological evaluation and resource utilisation study of HPV vaccination and screening in Japan.

（日本における HPV ワクチン接種・スクリーニングの疫学的評価と資源活用に関する研究）

パーマー　マシュー

Matthew Robert Palmer

Background

Despite evidence that highlights obvious deficiencies in the primary, and secondary prevention strategies for cervical cancer in Japan, morbidity, and mortality due to cervical cancer continues to increase. This research aimed to examine the national genotype prevalence of vaccine preventable and screening detectable HPV DNA and provide a comparative evaluation of alternate cervical screening strategies.

Methods

The National HPV DNA prevalence, vaccine preventable and screening detectable infections in normal histology confirmed cytology to cervical cancer was determined using a systematic review and meta-analysis of HPV DNA prevalence. Analysis was performed using the Freeman Tukey double arcsine transformation and Der Simonian-Laird random-effects methods to compute the weighted overall pooled estimates with confidence intervals (CIs). A comprehensive evidence review of primary screening strategies was conducted, and a modelled comparative evaluation of screening and diagnoses was performed to determine the optimal screening strategy.

Results

The analysis included 86 studies comprising 504, 035 women. The estimated national HPV prevalence in women with normal histology confirmed cytology was 15.7% (12.3-19.4) and in those with cervical cancer was 79.5% (74.3-84.2). HPV prevalence varied by age and stage of diagnosis. In this study it was shown that most infections would be detected early using a highly sensitive HPV DNA test. Additionally, 68.7% (61.8-75.2) of invasive cervical cancers could be prevented using the nonavalent vaccine compared to the quadrivalent (55.6%, 48.7-62.5) and bivalent (54.3%, 47.1-61.4). It was also estimated that cross protective genotypes contribute to 7.3% (5.06-10.6) of invasive cervical cancers. All pooled prevalence estimates are presented with 95% confidence intervals. The impact of introduction on reduction in the number of treatments and the relative rate of referral to treatments in terms of harms is greater for HPV DNA testing with LBC triage, partial HPV DNA testing with LBC triage, and adjunct HPV DNA testing and conventional cytology. However, an increase in colposcopy referrals is predicted to result compared to the current method of cervical screening.

Conclusion

The nonavalent vaccine will prevent the greater proportion of vaccine direct vaccine preventable infection. The use of a high-quality sensitive primary HPV DNA test can detect precancerous lesions early, reduce number colposcopies and excess referral to further treatment, compared to current cytology-based methods.