

Vaccination against human papillomavirus infection: A new paradigm in cervical cancer control

Professor David Jenkins, Director Clinical Development, Global HPV Vaccines, GlaxoSmith Kline, Rixensart, Belgium, Emeritus Professor in Pathology, Nottingham University, UK

Human papillomavirus (HPV) infection is the first necessary cause for the development of cervical cancer. Globally, the disease burden of cervical cancer is estimated at approximately 470,000 new cases and 230,000 deaths each year; where at least 80% of the cases occur in developing countries where almost no screening programs for early detection of pre-cancerous lesions exist.

Papillomaviruses are small double-stranded DNA viruses causing a variety of proliferative epithelial lesions (warts and papillomas) targeting cutaneous or mucosal epithelium. Approximately 40 HPV types have been identified to infect the genital tract and have been classified as low-risk or high-risk according to oncogenic potential. The most prevalent HPV types associated with cervical cancer are HPV-16 and 18; accounting for 70% of cervical cancers worldwide.

GlaxoSmithKline Biologicals has developed a prophylactic HPV-16/18 L1 VLP candidate vaccine against cervical cancer. Results of a recent clinical trial show the vaccine was safe and well-tolerated, and induced antibody responses that were 80 to 100-fold higher than following natural infection. The vaccine was highly efficacious in preventing incident infection and 100% efficacious against persistent HPV-16 and 18 cervical or cervicovaginal infection. Additionally, complete protection against CIN associated with persistent infection by HPV-16 and/or 18 was observed

The psychosocial and economic costs of HPV-induced diseases of the lower genital tract are enormous, vaccination may prevent the 70% of cervical cancers that are associated with HPV-16/18 thus alleviating the emotional and fiscal outcomes of HPV infection.