Early Detection and Molecular Targeting of Human Papillomavirus for Control of Cervical Cancer

Bhudev C. Das
Division of Molecular Oncology, Institute of Cytology & Preventive Oncology,
Indian Council of Medical Research (ICMR)
1-7, Sector-39, NOIDA

Abstract

Infection with specific types of high risk human Papillomaviruses (HR-HPVs), particularly the HPV type 16 and HPV 18 are essential for the development of cervical cancer. Since it takes 10-15 years to develop invasive cancer, early detection of HPV and treatment of precancerous lesions can reduce the incidence of cervical cancer significantly. Several new technologies have been developed for HPV screening tests. Early detection of HPV infection provides an opportunity to interfere with the viral persistence, propagation and progression of lesions. Several studies revealed that HPV uses several host cellular protein factors for expression of two viral oncogenes, E6 and E7. Targeting these key host cellular regulatory factors is important to silence the expression of oncogenic HPVs. We have therefore screened a few potent anticancer herbal derivatives such as curcumin, *Emblica Officinalis* and B*ryophyllum Pinnata* which are known to have no or negligible toxic/ adverse effects on human systems in order to discover an effective anti-HPV molecule. All the three herbal products are found to have strong suppression activity on HPV oncogene expression. Thus early detection of HPV and its targeting by nontoxic herbal drugs can be an effective approach for controlling and reducing cervical cancer.

Key words: Cervical cancer, Human Papillomavirus (HPV), VIA, VILI, Multiplex PCR, Curcumin, Transcription factor.