The Carolina Women's Care Study: Investigating Markers of HPV Persistence

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Cervical cancer is a rare outcome of high risk HPV infection. In fact, about 90% of incident HPV infections clear clinically within a few months and only women with persistent HPV infection are at risk for progression to cervical carcinoma. Currently no markers exist to identify women in which HPV infection is likely to persist, among the many who are HPV-positive. If markers of HPV persistence could be identified, follow-up could be directed only to those women in which the infection is likely to persist, in a cost-effective and efficient fashion. To explore markers of HPV persistence, we have established the Carolina Women's Care Study: we are recruiting freshman female students attending the health center at the University of South Carolina (USC). Study participants are followed from their freshman year throughout their college studies, with biannual Pap smears and cervical mucus collections. We monitor: cytology, HPV infection by specific type, viral load, HPV E7 mRNA expression in the Pap smear material, and the profile of sixteen cytokines in cervical mucus. Questionnaires administered at each visit collect information concerning lifestyle factors, stress, smoking, diet and physical activity. In addition, we are exploring genetic polymorphisms (SNPs) in the promoter region of several cytokine genes in DNA isolated from blood collected from all study participants at their first visit. To date, we have enrolled 255 women. As expected, about 10% of the women had cervical cytological abnormalities and 35% were HPV positive (as measured by PCR). Women with HPV infection have decreased levels of RANTES and MCP-1. SNPs have been identified in the promoter region for several cytokines including TNF-α, IL-6, and IL-8. As the study matures, we hope to determine if there is a correlation between SNPs in the promoter regions of the cytokine genes, the expression of these cytokines in the cervical mucous, and HPV persistence.