HIV Drug Shuts Down Precancerous HPV-Infected Cells

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The antiretroviral (ARV) drug lopinavir (found in Kaletra) is able to kill cervical cells infected with the human papillomavirus (HPV)—cells that can go on to become cancerous—according to a study published online May 5 in the journal *Antiviral Therapy*.

HPV is one of the most widely spread viruses in the world. Transmitted through sexual contact, some strains cause genital warts, while others can cause cells to mutate and become cancerous, thereby leading to cervical cancer, anal cancer, penile cancer and cancers of the head and neck.

Though there is now a vaccine against several strains of HPV, it can only prevent HPV. It doesn't protect someone already infected from developing cancer. Also, HIV-positive women have much higher rates of cervical cancer than women without HIV, and cervical cancer is a leading cause of death in both HIV-positive and HIV-negative women in resource poor countries.

In announcing the new findings, the study's senior author—Ian Hampson, PhD, from the University of Manchester in England—noted that he and his colleagues were the first to document that lopinavir could be toxic to HPV, as reported in a fall 2006 issue of *Antiviral Therapy*.

More recently, Hampson and his team looked specifically at whether lopinavir's toxic effect on HPV-infected cells in the cervix is limited to just those cells, while leaving healthy uninfected cells alone. They found that it did just that.

The concentration of lopinavir needed to kill the HPV-infected cells is far too high to take it orally as a capsule, so it will need to be developed as a cream that can be applied directly to the cervix or as an inserted device, called a pessary, that can deliver the drug.

"Our results suggest that for this drug to work against HPV it would be necessary to treat virus-infected cells of the cervix with roughly 10–15 times the concentration that is normally found in HIV-infected patients taking lopinavir as tablets," Hampson said.

Hampson doesn't mention whether lopinavir could be used for other types of HPV-associated cancers, but the cellular mechanisms whereby HIV leads cervical cells to become cancerous are very similar to how cells in the anus become cancerous.

“Lopinavir is obviously safe for people to take as tablets or liquid, but our latest findings provide very strong evidence to support a clinical trial using topical application of this drug to treat HPV infections of the cervix,” Hampson concludes.

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http://beta.docker.poz.com/article/hiv-hpv-lopinavir-20382-7870