FACULTY OF MEDICINE AND HEALTH SCIENCES

Treating Cervical Intraepithelial Neoplasia in Women Living with HIV in Kenya

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1) **Chung MH**, De Vuyst H, Greene SA, Mugo NR, Querec TD, Nyongesa-Malava E, Cagle A, Sakr SR, Luchters S, Temmerman M, Unger ER, McGrath CJ. Human Papillomavirus Persistence and Association With Recurrent Cervical Intraepithelial Neoplasia After Cryotherapy vs Loop Electrosurgical Excision Procedure Among HIV-Positive Women: A Secondary Analysis of a Randomized Clinical Trial. 2021. JAMA Oncology. Aug 5;e212683.
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SUMMARY

As an AIDS-defining illness, the burden of cervical cancer and its risks are much higher among women living with HIV (WLWH), particularly in sub-Saharan Africa (SSA) where co-infection with HIV and human papillomavirus (HPV) is common. The key to successful reduction of cervical cancer has been screening for cervical pre-cancerous disease and removal of these lesions before they become malignant. However, the efficacy of different cervical treatment modalities has not been examined among WLWH and is relevant to low- and middle-income countries (LMIC) where inexpensive ablative methods, such as cryotherapy, are commonly used but may not be as effective as excisional procedures, such as loop electrosurgical excision procedure (LEEP).

The objective of this thesis is to assess and compare the effects of cryotherapy and LEEP to remove pre-cancerous lesions or cervical intraepithelial neoplasia (CIN) among WLWH. The studies were performed in Nairobi, Kenya at the Coptic Hope Center for Infectious Diseases. At this site, thousands of WLWH underwent cervical cancer screening with Papanicolaou (Pap) smear and colposcopy-directed biopsy, and hundreds of women were identified to have CIN grade 2 plus or higher. These women were enrolled in a clinical trial that randomized them to cryotherapy vs. LEEP or, if they had endocervical disease, in an observational study of LEEP plus top hat. This thesis studied the impact of these treatment methods on HIV cervical shedding, CIN recurrence, and HPV clearance.

We found that excisional methods were more effective than ablative methods in treating CIN among WLWH but carried a slight risk of increased HIV cervical shedding. LEEP was significantly better than cryotherapy in both preventing CIN and clearing HPV from the cervix over 2-year follow-up in our randomized trial. At the same time, LEEP was associated with more HIV cervical shedding compared to cryotherapy, though this was significantly attenuated if WLWH were on antiretroviral therapy (ART) during treatment. We also found that WLWH with endocervical intraepithelial neoplasia may benefit from LEEP plus top hat and had results comparable to WLWH who received LEEP alone for ectocervical CIN.

While excisional procedures such as LEEP and LEEP plus top hat appear to be more effective in treating CIN compared to cryotherapy in WLWH, further research will be needed to understand whether the clinical benefits outweigh the costs of implementation compared to the relatively low cost and ease of administering cryotherapy in LMIC in SSA. Regardless, WLWH receiving treatment should be on ART at the time of the procedure or recommended to abstain from sexual activity for several weeks to prevent potential HIV transmission to partners.

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