ANAL CANCER AND ANAL DYSPLASIA SCREENING

NATIONAL LGBTQIA+ HEALTH EDUCATION CENTER
A PROGRAM OF THE FENWAY INSTITUTE

The incidence of anal cancer and mortality due to anal cancer have increased in recent years.[1] Most anal cancers are caused by infection with human papillomavirus (HPV).[2] While HPV infections are often transient, persistent infections with oncogenic or cancer-causing types can lead to dysplasia, which can in turn progress to squamous cell carcinoma. The goal of screening for anal dysplasia is to detect and treat anal cancer precursors before they develop into cancer. Anal cancer can also be prevented through HPV vaccination.

THE EPIDEMIOLOGY OF ANAL CANCER

Who is at greatest risk?

The incidence of anal cancer varies by population, HIV status, and the presence of other immunocompromising conditions. Men who have sex with men (MSM) are disproportionately affected by anal cancer, particularly those with concurrent HIV infection who are older than 45 years, in whom anal cancer incidence is >100 per 100,000 person-years.[3] This incidence is more than 10 times greater than that in the general population. The incidence of anal cancer is also increased in others with HIV, MSM without HIV, women with a history of vulvar or cervical dysplasia or cancer, and people who are immunocompromised due to organ transplantation or other conditions.[3]

THE ANCHOR STUDY

Evidence that treating anal dysplasia can prevent anal cancer

The ANCHOR study provided crucial evidence that treating anal dysplasia prevents the development of anal cancer. This study was a clinical trial in which people with HIV who were at least 35 years old and had biopsy-proven anal high-grade squamous intraepithelial lesions were randomized to receive treatment of dysplasia or monitoring without treatment.[4] The median age of participants was 51 years, approximately 80% were men, and approximately 77% were MSM. Among participants, HIV was generally well-controlled; the median CD4 T cell count was around 600 cells/mm,[3] and approximately 90% had plasma HIV-1 RNA less than 200 copies/mL. Treatment of anal cancer precursors in this study reduced the rate of progression to anal cancer by 57% (95% confidence interval 6%-80%, p=0.03). Although not primarily a screening study, it demonstrated that treatment of anal dysplasia, which can be detected by screening, reduces the likelihood of anal cancer. Randomized trials of anal cancer screening in populations without HIV have not been published.

SCREENING FOR ANAL DYSPLASIA

Anal cytology and HPV testing

Anal dysplasia and oncogenic HPV infection can be detected through anal cytology and HPV testing, respectively. To obtain a sample for screening, a moistened Dacron or polyester swab is inserted approximately 2-3 inches into the anus, rotated around the circumference of the anal canal, and then withdrawn; the swab is then immediately submitted for cytologic analysis and/or HPV testing.[5] Clinicians typically perform collection of anal cytology. However, emerging evidence suggests that self-collected specimens by patients provide equivalent diagnostic accuracy for HPV testing, though with a lower diagnostic accuracy for cytological abnormalities.[6] Guidelines also recommend that a digital anal rectal examination to assess for masses be performed in the context of screening, after collection of samples for cytology and HPV testing.[3]

HIGH-RESOLUTION ANOSCOPY

The next step to evaluate abnormal screening test results

International guidelines provide recommendations about management of abnormal cytologic and/or HPV test results.[3] While some abnormalities (e.g., atypical squamous cells of undetermined significance with negative HPV testing) can be managed with repeat screening, the most common test to evaluate abnormal results is high-resolution anoscopy. This office procedure consists of examination of the anal mucosa with a lighted microscope. Samples of abnormal-appearing tissue can be obtained for biopsy to evaluate for dysplasia. Treatment of dysplasia, such as with electrocautery ablation, can also be performed via high-resolution anoscopy. If access to high-resolution anoscopy is lacking, clinicians should not offer anal cancer screening with cytology or HPV testing, since there is no recourse for an abnormal result; digital anal rectal examination alone, to detect masses consistent with anal cancer, is recommended in these circumstances.

ANAL CANCER SCREENING GUIDELINES

Who should have anal cytology and HPV testing?

The International Anal Neoplasia Society recommends anal cancer screening with cytology and/or HPV testing for people with increased risk of anal cancer, including[3]:

- ***MSM with HIV beginning at age 35 years***
- ***Others (e.g., women and heterosexual men) with HIV and MSM without HIV beginning at age 45 years***
- ***People with a history of vulvar dysplasia or cancer, within one year of diagnosis***
- ***People who have had solid organ transplantation, beginning 10 years post-transplant***
- ***Through shared decision-making, women with cervical or vaginal dysplasia or cancer, people with perianal warts, women with persistent cervical HPV type 16 infection, and other immunocompromised individuals.***

The Department of Health and Human Services Guidelines for the Prevention and Treatment of Opportunistic Infections in Adults and Adolescents with HIV similarly recommends anal cancer screening for MSM with HIV who are 35 years or older and all others with HIV who are 45 years or older.[7]

HPV VACCINATION

Another strategy to prevent anal cancer

A systematic review of 14 studies found that HPV vaccination before, but not after, age 27 years reduces the likelihood of anal HPV infection by 84% (95% confidence interval 77%-90%) in a per-protocol analysis.[8] HPV vaccination is recommended for all people in the United States up to age 26 years and through shared decision-making for those from 27 to 45 years.[9] Vaccinating early in adolescence, prior to the onset of sexual activity, is important, as the vaccine prevents acquisition of HPV but does not have an effect on HPV strains that have already been acquired.

SUMMARY

In contrast to many cancers, the incidence of anal cancer is increasing, and MSM and people with HIV are particularly affected. Most anal cancer is caused by HPV infection. Health centers can help prevent anal cancer by providing HPV vaccination and anal cancer screening with cytology and/or HPV testing, in accordance with national and international guidelines (see Box). Patients with abnormal anal cancer screening test results should be linked to high-resolution anoscopy. Treatment of anal cancer precursors at high-resolution anoscopy has been shown to reduce progression to anal cancer.

ANAL CANCER PREVENTION AT HEALTH CENTERS

1. ***HPV vaccination for all eligible patients***
2. ***Anal cancer screening with cytology and/or HPV testing, along with digital anal rectal examination, for patients with increased likelihood of anal cancer***
3. ***Provision and/or linkage to high-resolution anoscopy for patients with abnormal anal cancer screening test results***

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ACKNOWLEDGMENTS

This publication written by Kevin L. Ard, MD, MPH, in collaboration with the National LGBTQIA+ Health Education Center.

This project was supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under cooperative agreement number U30CS22742, National Training and Technical Assistance Partner (NTTAP), for $625,000.00 with 0% of the total NTTAP project financed with non-federal sources. This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS, or the U.S. Government.