Anal intraepithelial neoplasia in HIV+ men
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Screening for anal cancer precursors: what’s the learning curve for high resolution anoscopy?

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Chapter 6

Anal cancer is an increasing problem in HIV+ men who have sex with men (MSM), with incidence rates exceeding those of cervical cancer before the introduction of cervical screening programs.1, 2 Both cervical and anal cancer are preceded by a precursor lesion, respectively cervical and anal intraepithelial neoplasia (AIN). AIN is categorized in low grade (AIN 1; LGAIN) and high grade (AIN 2-3; HGAIN).3 AIN is highly prevalent in HIV+ MSM and AIN-screening is subject of discussion.1 Unfortunately, screening with anal cytology underestimates the presence of HGAIN.4 Therefore, screening with high resolution anoscopy (HRA) seems the preferred screening method. HRA combines proctoscopy with camera-assisted magnification and is in many respects comparable to cervical colposcopy, as described previously.5, 6

Currently, the lack of experienced HR-anoscopists is a major obstacle for the expansion of AIN screening programs. The quality of HRA depends on the experience of the anoscopist in recognizing abnormal mucosa and adequately targeting biopsies. Since the early nineties, HRA is practiced at the University of California, San Francisco (UCSF). This group reports that HRA anoscopists need extensive training and that they have a long learning curve.6 However, to date no studies have been conducted to quantify this learning curve. In this report we analyzed the HRA learning curve of the first author.

Between Aug 12, 2008, and Dec 1, 2010, one physician (OR) screened 388 HIV-positive MSM for AIN, of which 383 were included in the current study (5 HRA’s were of insufficient quality). Prior to inclusion, OR was trained 4 afternoons by an experienced HRA anoscopist (A. Kreuter, St. Joseph Hospital, Bochum, Germany). Patients were invited at the HIV outpatient clinic to participate and all participants were screened by HRA, with biopsies of suspect lesions. Patients with AIN were treated in a study setting, as reported elsewhere.7 Patients without AIN were invited for a second screening after one year. To evaluate the learning curve, we analysed prevalence trends in time. Therefore, we divided the 383 participants into six time-subsequent groups of 64 participants, and analysed AIN and HGAIN prevalence for each group at first screening. Next, for the patients without AIN at the first screening, we did the same for each group at the second screening.

At baseline (first screening), 208/383 (54%) had biopsy proven AIN, of which 94 (25%) had LGAIN and 114 (30%) HGAIN. Both the AIN and HGAIN prevalence...
increased over time, from 42% and 31% respectively in the first group to 67% and 41% in the last group (figure).

The 175 patients that did not have AIN at baseline were invited for the second screening after one year. 33 patients were lost to follow up (19 patients could not be reached, 1 patient had died [not study related], 13 refused a second HRA), leading to 142 evaluable patients for the second screening. 37/142 (26%) had AIN, of which 24 (17%) LGAIN and 13 (9%) HGAIN, with a gradual decrease in AIN and HGAIN prevalence over time, from 44% and 9% to 7% and 0% respectively (figure). The increasing/decreasing trends over time appear to level off after the third patient group i.e. after approx. 200 patients.

So, for both AIN and HGAIN prevalence an obvious increasing trend over time is seen at the baseline screening and, although a peak is seen in the fifth group, a decreasing trend at the second screening.

We do not think that the increasing AIN prevalence at baseline is caused by a changing study population. All patients were HIV+ MSM, selected in the same way over the whole study period. We think that the increasing prevalence is caused by the HRA-learning curve of OR. This is also reflected by the decreasing AIN prevalence at the second screening of patients who were “AIN-negative” at baseline. Probably, a part of these AIN-cases were missed at the first screening. In addition, the prevalence numbers at baseline in the last group (67% AIN, 41% HGAIN) are among the highest prevalence numbers ever reported in HIV+ MSM.1 We therefore think that over time we reached a high quality of performance of HRA. Although our analysis only involves one anoscopist, our data support and now quantify the previously reported experience that HRA practitioners show a long learning curve.6

HRA is a complicated procedure, which should not be underestimated. It requires extensive training and experience. Given the lack of other qualitative screening methods, training programs need to be expanded to facilitate further introduction of AIN-screening programs.
Figure: (HG)AIN prevalence with increasing experience

(HG)AIN prevalence of six time-subsequent groups of patients screened by HRA by one single anoscopist. Patients without AIN were invited for a second HRA-screening after one year. (HG)AIN = (high grade) anal intraepithelial neoplasia; HRA = high resolution anoscopy.
References