5. Sexually Transmitted Infections

Human β defensins 2 and 3 are upregulated in HPV-associated anal skin lesions of both HIV+ and –gay men.


Objective: To analyze expression of antimicrobial peptides and proteins (AMPs) in human papillomavirus (HPV)-associated anal skin lesions of human immunodeficiency virus (HIV)-positive men who have sex with men (MSM), a special high-risk group for persistent HPV infections and anal dysplasia.

Background and methods: AMPs are widely distributed effector molecules of the innate immune system with well-known antibacterial activity. However, there is a paucity of information regarding antiviral effects of AMPs. Skin lesions were analyzed for the presence of LL-37, RNase 7, and human β-defensin (hBD)-1, hBD-2 and hBD-3. Moreover, HPV typing and HPV DNA load determination for HPV types 6, 11, 16, 18, 31, and 33 were performed to evaluate possible correlations between expression of AMPs and lesional HPV types.

Results: Skin biopsies of 45 HIV-positive MSM with anal intraepithelial neoplasia (AIN), anal condylomata acuminata, or unaffected anal mucosa, as well as condylomata acuminata of eight HIV-negative MSM, were analyzed for AMP mRNA expression. Additionally, immunohistochemical analysis for hBD-2 and hBD-3 was performed in a total of 45 samples. hBD-2 and hBD-3 gene and protein expression was significantly increased in both AIN and condyloma, whereas LL-37, RNase 7, and hBD-1 gene expression did not differ significantly from unaffected anal mucosa. AMP expression correlated neither with the number of HPV types nor with the high-risk and low-risk HPV DNA loads of the quantified types. No significant differences in AMP expression were observed in condylomata of HIV-positive and HIV-negative MSM.

Conclusion: hBD-2 and hBD-3 expression was shown to be significantly upregulated in HPV-associated anal skin lesions of both HIV-positive and HIV-negative MSM.

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HIV patients suffer more skin problems than the noninfected population and need regular skin examinations.


Objective: To survey HIV-infected patients on highly active antiretroviral therapy (HAART) about skin diseases and sexually transmitted diseases.

Background and methods: The prevalence of skin diseases and sexually transmitted diseases has always played a special role in studying HIV infections, both because of immunosuppression and simultaneous transmission. In the early years of the HIV epidemic, skin diseases were often a pathognomonic sign in heavily immunosuppressed patients. With HAART, HIV infection has become a treatable chronic disease. For this reason the spectrum and prevalence of skin diseases has changed. Pathognomonic skin diseases have become rare and the wide spectrum today ranges from infectious to iatrogenic skin diseases. In 2007, 166 HIV-infected patients and 173 patients of a comparison group were surveyed in retrospect by questionnaire about skin diseases and sexually transmitted diseases that appeared in 2006.

Results: A shift occurred to a wide variety of mostly trivial skin diseases and away from severe opportunistic skin diseases.

Conclusion: HIV-infected patients today experience more numerous skin problems than the noninfected population and need regular dermatological control examinations.

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(No essences in this section).