HIV medicine for dermatologists and venereologists

Summary
Broad administration of combined antiretroviral therapy (ART) has dramatically reduced the morbidity and mortality of the HIV-infection and substantially improved the life expectancy of people living with HIV (PLWH). PLWH, who are effectively treated with an ART, are considered to be unable to transmit HIV. The standard of care is usually an antiretroviral single tablet regimen. Since 2015 the Robert Koch Institute has reported a slight decrease in the rate of recently diagnosed HIV-infections in Germany, but the proportion of late presenters (initial diagnosis in advanced stages of infection) has remained consistently high at around 32 % since 2005. HIV-infections have not been diagnosed in 10,800 PLWH so far. In comparison to the general population PLWH suffer more frequently from skin diseases. Depending on the stage of immunodeficiency, untreated PLWH develop HIV indicator diseases of the skin and the mucocutaneous membranes. Knowledge of these diseases facilitates the selection of individuals who should be offered HIV testing. Early diagnosis of HIV-infections allows early introduction of the ART, prevents the spread of HIV and reduces the mortality rates and treatment costs associated with late diagnosis. HIV is a predominantly sexually transmitted infection. Through focused sexual anamnesis and the diagnosis of HIV indicator diseases and other sexually transmitted infections, dermatovenereologists in particular may be able to identify previously undiagnosed PLWH and persons with an increased risk of HIV infection, enabling initiation of ART in the former and pre-exposure prophylaxis counseling in the latter.

Introduction
Since the HIV pandemic began, more than 32.7 million people worldwide have died from the effects of HIV (human immunodeficiency virus) and AIDS (acquired immune deficiency syndrome). Due to the wide-spread introduction of antiretroviral therapy (ART) in the mid-1990’s, both mortality and morbidity of people living with HIV (PLWH) have been reduced dramatically. The prevalence of HIV infection and thus the probability of encountering an HIV-positive (HIV+) patient during routine medical care has been increasing ever since. Basic knowledge of HIV and AIDS is a core competency for dermatologists and venereologists.

Definition of HIV infection
Acquired immunodeficiency is caused by infection with HIV and is characterized most noticeably by the loss of CD4+ T-helper cells. Without ART, HIV-associated diseases usually develop after a latency period of up to ten years. The full-blown disease called AIDS may also ensue, displaying typical malignancies and opportunistic infections but also unusual dermatoses.
In 2019, about 90,700 people in Germany were living with HIV.

About 32% of HIV infections were diagnosed only in advanced stages of immunodeficiency, and about 15% with full-blown AIDS.

10,800 PLWH remained undiagnosed in 2018.

Epidemiology

In 2019, according to estimates by the Robert Koch Institute (RKI), about 90,700 people in Germany were living with HIV infection [1]. 73% of these were men having sex with men (MSM), 15% were women, 5% heterosexual men, 11% drug addicts (i.v. drug users; IVDU), and about 0.6 recipients of blood products. The prevalence of HIV infection and the age of patients continue to rise due to the improved life expectancy of HIV+ patients treated with ART.

New diagnoses

Since 2015, the total number of new HIV infections in Germany has been declining slightly, reaching 2,600 in 2019 according to the RKI. About 32% of HIV infections were diagnosed only in advanced stages of immunodeficiency, and about 15% with full-blown AIDS. The percentage of late presenters (newly diagnosed at an advanced stage of immunodeficiency) has remained roughly the same since 2005. 10,800 PLWH remained undiagnosed in 2019 [1].

Transmission

HIV is transmitted via unprotected sexual contact with a person infected with HIV (if this person has a detectable virus burden).

HIV is transmitted via unprotected sexual contact with a person infected with HIV (if this person has a detectable virus burden), as well as through sharing of injection utensils, mostly among i.v. drug users, but also during pregnancy (vertical transmission). Other ways of transmission, mostly described in case reports, are exceedingly rare nowadays. HIV infection via transfusion of blood or blood products is observed almost exclusively in countries where donor blood is not routinely tested for HIV.

HIV and other sexually transmitted infections (STI)

STIs often occur simultaneously. STIs are more frequently found in HIV+ people, and any existing STI promotes the transmission of HIV and other venereological diseases. Early diagnosis and timely, consistent treatment reduce further spreading [2]. In view of the general increase of STIs, sexually active people who have frequent, unprotected sex with different partners should actively be offered STI screening [3]. Condoms are the most efficient way of protection against any type of STI. The fact that HIV infection is now treatable and the availability of new methods for preventing HIV transmission, such as pre-exposure prophylaxis (PrEP) via medication, has recently led to a decline in condom use, especially in risk groups [4, 5].

The incidence of syphilis infections has increased dramatically in industrialized countries since the late 1990’s. In Germany as well, syphilis has multiplied since 2000, especially in men. In 2017, the number of syphilis patients in Germany was 17.3 cases per 100,000 [6]. MSM are infected most frequently. 45.5% of MSM with a new diagnosis of syphilis reported concomitant HIV infection [7].

Preventative strategies for avoiding HIV infection (Figure 1)

Although recent studies have offered some hope for better protection against HIV infection through preventive vaccination, attempts to date have been...
disappointing. Apart from sexual abstinence, syringe exchange programs, and consistent use of condoms, there are also new medical strategies for preventing HIV infections.

Protection via wide-spread HIV testing (Test and Treat) and early initiation of antiretroviral therapy (treatment as prevention: TasP) in HIV+ individuals

HIV+ individuals with effective antiretroviral therapy (with HIV RNA below the detection level of 50 copies per ml for at least six months) are considered non-infectious. This also applies to pregnant, HIV-positive women on ART, which is also why their newborns are now increasingly rarely given additional post-exposure prophylaxis. According to RKI estimates from 2019, HIV infection has already been diagnosed in 88% of all PLWH, and 96% of these received antiretroviral therapy. 96% of the latter achieved the therapeutic goal of HIV RNA < 200 copies/ml. This percentage surpasses the goals of the Joint United Nations Program on HIV/AIDS (UNAIDS) [1], though the number of diagnosed HIV+ individuals does not.

Post-exposure prophylaxis (PEP) after a relevant risk contact with an HIV+ individual with a detectable or unknown virus burden, or with a risk person of unknown HIV status

Both occupational and non-occupational, relevant exposure to infectious materials or body fluids from HIV+ individuals needs to be followed by prompt initiation of PEP, within 72 hours at the latest. This consists of tenofovir disoproxil/emtricitabine (245/200 mg tablet once a day) and raltegravir (400 mg tablet twice a day) for a total of 28 days [8].

Pre-exposure prophylaxis (PrEP) for HIV-negative individuals exposed to a high risk of HIV transmission

(Continuous) medical pre-exposure prophylaxis with one tenofovir disoproxil/emtricitabine 245/200 mg tablet once a day is recommended for HIV-negative individuals whose (sexual) lifestyle is associated with a significantly increased risk of HIV transmission. PrEP treatment must be accompanied by sexual counseling as well as by regular HIV testing and STI screening [9].

In Germany, PrEP is reimbursed for physicians, who take care of PrEP using persons, via special billing codes. Dermatologists and venereologists with appropriate qualification can apply for billing authorization. The following records must be submitted for authorization to participate in HIV PrEP programs and for the use of billing codes GOP 01920-21, GOP 01931-01836, GOP 32066, and 67:
Medical pre-exposure prophylaxis is recommended for HIV-negative individuals whose (sexual) lifestyle is associated with a significantly increased risk of HIV transmission.

Previously HIV-negative patients presenting with an STI should be tested for other STIs including HIV and hepatitis, and PrEP counseling offered if appropriate.

Early diagnosis and effective treatment of HIV infections can largely prevent both HIV transmission and AIDS.

Apart from the normal procedure of patient information and consent, a separate written consent is no longer required when performing HIV testing.

HIV testing is offered at public health offices and AIDS centers but kits can also be purchased for self-testing at pharmacies and online.

Findings on the skin and mucous membranes are indicative for the initial diagnosis of HIV infection as well as for determination of the clinical stage.

Typical indicative diseases on the skin and mucous membranes will appear in the course of untreated HIV infection.

A permit application to the Association of Statutory Health Insurance Physicians [10],

documentation of at least 16 hours of work shadowing in HIV/AIDS patient care (opportunities are offered through the German Work Group of Established Physicians Attending HIV-infected Persons {Deutsche Arbeitsgemeinschaft niedergelassener Ärzte in der Versorgung HIV-Infizierter e. V. [dagnä]},

participation in treatment of at least 15 individuals with HIV/AIDS and/or PrEP, as well as

eight further education points in the field of HIV/AIDS within one year of the application.

Conclusion: Previously HIV-negative patients presenting with an STI should be tested for other STIs including HIV and hepatitis, and PrEP counseling offered if appropriate. Condoms provide the most effective protection against STIs for all sexually active people.

HIV testing

Early diagnosis and effective treatment of HIV infections can largely prevent both HIV transmission and AIDS. In a low-prevalence countries like Germany, HIV testing may only be performed if indicated and on a voluntary basis – for both ethical and economic reasons. Apart from the normal procedure of patient information and consent, a separate written consent is no longer required when performing HIV testing, and testing usually does not impact the budget. Nevertheless, HIV testing is surprisingly rarely performed by dermatologists and venereologists. Testing is offered at public health offices and AIDS centers but kits can also be purchased for self-testing at pharmacies and online. HIV infection is considered confirmed when both screening and confirmation tests are positive, or when the virus has been detected directly via PCR.

HIV indicator diseases

Compared with the general population, HIV+ individuals develop dermatoses more frequently [11, 12]. Findings on the skin and mucous membranes are indicative for the initial diagnosis of HIV infection as well as for determination of the clinical stage (Table 1). These findings depend on the level of immunodeficiency and can often be diagnosed via simple inspection. This is why dermatologists and venereologists play a crucial role especially in the initial diagnosis of HIV infection [13].

Typical indicative diseases on the skin and mucous membranes will appear in the course of untreated HIV infection (Table 2): At first, acute HIV infection will frequently present with exanthema (Figure 2) and accompanying lymphadenopathy.

Table 1  Classification of HIV disease according to the CDC (1993) (*according to the CDC list of AIDS-defining diseases).

| Clinical categories/CD4 cell count | Asymptomatic or acute HIV-disease | Symptomatic but not A or C | AIDS* |
|-----------------------------------|----------------------------------|---------------------------|-------|
| ≥ 500 CD4 cells/μL                | A1                               | B1                        | C1    |
| 200–499 CD4 cells/μL             | A2                               | B2                        | C2    |
| ≤ 200 CD4 cells/μL              | A3                               | B3                        | C3    |
### Table 2
Selected HIV-associated opportunistic diseases of relevance to dermatologists in Germany.

| Clinical HIV CDC category | Diagnosis | Pathogenic agent | Therapy |
|---------------------------|-----------|------------------|---------|
| A                         | Acute HIV-Infection: Exanthema, persistent lymphadenopathy | HIV | ART |
| B                         | Oropharyngeal and/or vulvovaginal candidiasis | Candida species | Systemic and/or local antifungal agents |
|                           | Oral hairy leukoplakia | EBV | none |
|                           | Herpes zoster (multisegmental) | VZV | Systemic antiherpetic agents, pain treatment |
|                           | Bacillary angiomatosis | Rickettsial species | Macrolide antibiotics |
|                           | Idiopathic, thrombocytopenic purpura | HIV | Symptomatic, ART |
| C (AIDS)                  | Esophageal candidiasis | Candida species | Systemic and local antifungal agents |
|                           | Chronic CMV and/or HSV ulcer | HSV, CMV | Systemic antiherpetic agents (with efficacy against CMV) |
|                           | Skin and mucocutaneous manifestations of tuberculosis | Mycobacterium tuberculosis | Systemic antituberculosis drugs |
|                           | Kaposi's sarcoma | HHV 8, HIV | ART, topic therapy, excision, irradiation therapy, systemic chemotherapy (pegylated liposomal doxorubicin) |
|                           | Malignant lymphoma | EBV, HHV 6 | Different systemic chemotherapy regimens, antibody therapy (rituximab), stem-cell transplantation |
|                           | Wasting syndrome | HIV | ART |

Abbr.: HIV, human immunodeficiency virus; CMV, cytomegalovirus; EBV, Epstein Barr virus; VZV, varicella zoster virus; HHV, human herpesvirus; ART, antiretroviral therapy.

Later, oral (Figure 3) and vulvovaginal candidiasis, herpes zoster (Figure 4) and cervical carcinoma in situ may occur. Many diseases that define AIDS also appear on the skin and mucous membranes. The most common AIDS-defining neoplasia in untreated PLWH is Kaposi’s sarcoma (Figure 5). The HIV Indicator Diseases Across Europe study (HIDES) also showed that patients with STIs and certain skin conditions such as seborrheic eczema or exanthema resembling mononucleosis had a high prevalence of HIV [14, 15]. These conditions constitute an indication for HIV testing. About 10 % of HIV cases are initially diagnosed solely due to disorders of the skin and mucous membranes [16]. Mollusca contagiosa (Figure 6) in adult patients may also indicate immunodeficiency.

### HIV-associated dermatoses

Kaposi’s sarcoma and opportunistic infections have become rarer, while side effects from drugs, epithelial tumors, and STIs are on the rise. Later, oral (Figure 3) and vulvovaginal candidiasis, herpes zoster (Figure 4) and cervical carcinoma in situ may occur. Many diseases that define AIDS also appear on the skin and mucous membranes. The most common AIDS-defining neoplasia in untreated PLWH is Kaposi’s sarcoma (Figure 5). The HIV Indicator Diseases Across Europe study (HIDES) also showed that patients with STIs and certain skin conditions such as seborrheic eczema or exanthema resembling mononucleosis had a high prevalence of HIV [14, 15]. These conditions constitute an indication for HIV testing. About 10 % of HIV cases are initially diagnosed solely due to disorders of the skin and mucous membranes [16]. Mollusca contagiosa (Figure 6) in adult patients may also indicate immunodeficiency.

The spectrum of HIV-associated dermatological and venereological conditions has changed significantly since the introduction of ART: Kaposi’s sarcoma [17, 18] and opportunistic infections have become rarer, while side effects from drugs, epithelial tumors, and STIs are on the rise [19, 20].
In immunodeficient HIV patients, even saprophytes may penetrate into deeper layers of the tissue, frequently causing pruritic folliculitis. Other typical skin conditions in PLWH include dry skin, chronic pruritus, exacerbation of atopic dermatitis, and nodular prurigo [21, 22]. Apart from common dermatoses (oral candidiasis, herpes zoster, seborrhoeic eczema), immunodeficient patients may also show skin conditions that are otherwise rare. These include bacillary angiomatosis (Figure 7), oral hairy leukoplakia (OHL) (Figure 8), cytomegalovirus ulcers (Figure 9), cutaneous cryptococcosis (Figure 10), or cutaneous histoplasmosis (Figure 11).

In immunodeficient HIV patients, even saprophytes may penetrate into deeper layers of the tissue, frequently causing pruritic folliculitis. Other typical skin conditions in PLWH include dry skin, chronic pruritus, exacerbation of atopic dermatitis, and nodular prurigo [21, 22]. Apart from common dermatoses (oral candidiasis, herpes zoster, seborrhoeic eczema), immunodeficient patients may also show skin conditions that are otherwise rare. These include bacillary angiomatosis (Figure 7), oral hairy leukoplakia (OHL) (Figure 8), cytomegalovirus ulcers (Figure 9), cutaneous cryptococcosis (Figure 10), or cutaneous histoplasmosis (Figure 11).

In immunodeficient HIV patients, even saprophytes may penetrate into deeper layers of the tissue, frequently causing pruritic folliculitis. Other typical skin conditions in PLWH include dry skin, chronic pruritus, exacerbation of atopic dermatitis, and nodular prurigo [21, 22]. Apart from common dermatoses (oral candidiasis, herpes zoster, seborrhoeic eczema), immunodeficient patients may also show skin conditions that are otherwise rare. These include bacillary angiomatosis (Figure 7), oral hairy leukoplakia (OHL) (Figure 8), cytomegalovirus ulcers (Figure 9), cutaneous cryptococcosis (Figure 10), or cutaneous histoplasmosis (Figure 11).

Chronic pruritus and nodular prurigo are typical conditions in PLWH.

Figure 2 Exanthema after acute HIV-infection (a), close-up (b).

Figure 3 Oral candidiasis in a young HIV-infected sex worker.
Figure 4 Herpes zoster lesions in a female HIV-infected drug user.

Figure 5 Epidemic, HIV-associated, HHV-8 positive Kaposi’s Sarcoma (AIDS-defining neoplasia).

Figure 6 Mollusca contagiosa in an adult HIV-infected man with advanced immune deficiency.
Figure 7  Bacillary Angiomatosis in an HIV-infected man.

Figure 8  Oral hairy leukoplakia in an asymptomatic HIV-infected man.

Figure 9  Painful cytomegalovirus-ulceration in an AIDS-patient with advanced immune deficiency.
sub-Saharan Africa and in the former Eastern Bloc countries, however, HIV+ patients suffer from severe cases of tuberculosis (TB). In South East Asia, *talaromyces marneffei* mycoses are found in third place of the most common AIDS-defining diseases, after TB and cryptococcosis. Cutaneous involvement is quite common with these diseases.

The longer cellular immunodeficiency lasts, the more frequently malignant tumors will develop on the skin and mucous membranes. Neoplasias are more frequently found in PLWH, often at a younger age. [23]. Various cohorts worldwide have observed that HIV+ individuals, as compared with the general population, have an increased risk of basal cell carcinoma and cutaneous squamous cell carcinoma [24–26]. Recent data on the incidence of melanoma are ambiguous [21].

Oncogenic viruses and immunodeficiency mainly increase the risk for Kaposi’s sarcoma (human herpes virus [HHV]-8), non-Hodgkin lymphoma (Epstein-Barr virus [EBV], HHV-6, and HHV-8), as well as cervical and anal carcinoma (human papillomavirus [HPV]-16 and -18 as well as other high-risk HPV) [20, 27]. HPV-associated diseases such as genital warts (condylomata acuminata) and intraepithelial neoplasias (IN) (Figure 12) are on the rise in spite of ART. Due to the increasing incidence of anal carcinoma, regular proctological screening examinations are indicated in HIV+ patients in addition to the established colposcopic screening for
HPV-associated diseases such as genital warts (condylomata acuminata) and intraepithelial neoplasias (IN) (Figure 12) are on the rise in spite of ART.

Due to the increasing incidence of anal carcinoma, regular proctological screening examinations are indicated.

In HIV patients, diseases of the skin and mucous membranes are often more serious, develop more rapidly, and prove treatment refractory.

Figure 12 Anal intraepithelial neoplasia with punctation beside condylomata acuminata in an HIV-infected MSM (High resolution anoscopy).

Progress in HIV medicine has increased both life expectancy and quality of life for PLWH significantly. The introduction of ART in the 1990's has changed a deadly disease into a treatable chronic infection. ART is usually indicated directly after HIV infection has been confirmed. Late presenters also receive additional prophylaxis with trimethoprim/sulfamethoxazole (TMP/SMX). HIV+ patients who are treated with effective ART should have regular cellular immunograms at roughly three-monthly intervals, to determine CD4 counts and the CD4/CD8 ratio, and to quantify the HIV burden in the blood. The goal of ART is sustained suppression of HIV RNA below the threshold of detection, as well as immune reconstitution.

The standard treatment when initiating ART for HIV is a single tablet regimen (STR) containing two or three antiretroviral compounds from different substance classes.

Antiretroviral combination therapy (ART)

The standard treatment when initiating ART for HIV is a single tablet regimen (STR) containing two or three antiretroviral compounds from different substance classes [34]. For initial therapy, nucleoside reverse transcriptase inhibitors (NRTI) are combined with integrase inhibitors (INI), non-nucleoside reverse transcriptase inhibitors (NNRTI), or protease inhibitors (PI). Protease inhibitors as well as the INI elvitegravir are administered with a ‘booster’ of cobicistat or ritonavir to
reduce intake frequency and tablet count. The inhibition of cytochrome P450 required for the ‘booster’ effect may, however, result in significant interactions with other medications and drugs.

There have been only three case reports world-wide describing complete healing of HIV after bone marrow transplants. ART must therefore be taken conscientiously and consistently for the rest of the patient’s life. This may result in long-term side effects as well as in drug resistance, particularly in cases of low compliance. In view of an ageing HIV+ population, drug interactions between ART and other medications must also be considered. Every physician involved in healthcare for PLWH needs to exclude interactions with ART before prescribing other medications to ensure that ART efficacy is not compromised and side effects can be avoided. For this purpose, continuously updated websites are available [35].

Especially in advanced stages of HIV infection, immune reconstitution inflammatory syndrome (IRIS) may occur. This includes severe exacerbations of (latent) infection, autoimmune diseases, and allergies. Side effects such as lipodystrophy syndrome or drug rashes have become a rare occurrence with modern ART. Severe hypersensitivity reactions to the NRTI abacavir can be largely prevented if the patient tests negative for HLA* B57:01 before initiating treatment [13].

There are more than 30 antiretroviral substances, so individualized treatment of PLWH is feasible. New attachment and capsid inhibitors are currently being developed and are being tested for their efficacy and tolerability. The first long-acting treatment regimen, with intramuscular injections every eight weeks, has already been submitted for approval. Broad neutralizing antibodies and therapeutic vaccines are also being studied for HIV. Experimental treatments include various CRISPR/Cas9 technologies for gene therapy of HIV infection, but their use in humans is the subject of some controversy.

**Conclusion**

HIV infections may become manifest with indicator diseases on the skin and mucous membranes. In cases of HIV-associated symptoms, HIV testing must be offered. Early diagnosis and life-long, effective antiretroviral treatment of HIV infection reduces both mortality and further spreading of the infection. Modern antiretroviral treatment regimens are well tolerated and easy to use, but drug interactions need to be considered especially in view of the ageing HIV+ population. There is currently no effective vaccine against HIV infection, but consistent intake of medical pre-exposure prophylaxis by HIV-negative individuals at high risk of HIV transmission can largely prevent HIV infection.

**References**

1. an der Heiden M, Marcus U, Kollan C et al. Schätzung der Zahl der HIV-Neuinfektionen und der Gesamtzahl von Menschen mit HIV in Deutschland, Stand Ende 2019. Epid Bull 2020; 48: 3–16.
2. Esser S. 15. HIV und sexuell übertragbare Erkrankungen (STDs). In: Hoffmann C, Rockstroh JK (Hrsg.): HIV 2020/2021; Medizin Fokus Verlag, Hamburg, 2020: 404–27.
3. Robert Koch-Institut. Syphilis in Deutschland im Jahr 2009. Epidemiologisches Bulletin Nr. 2010; 49:13. S487–91.
4. Molina JM, Charreau I, Spire B et al. ANRS IPERGAY Study Group. Efficacy, safety, and effect on sexual behaviour of on-demand pre-exposure prophylaxis for HIV in men who have sex with men: an observational cohort study. Lancet HIV 2017; 4(9): e402–10.
5. Serpa JA, Huynh GN, Nickell JB, Miao H. HIV Pre-exposure prophylaxis and increased incidence of sexually transmitted infections in the United States. Clin Infect Dis 2020; 70(9): 1884–90.
Robert Koch-Institut. Anstieg von Syphilis-Infektionen bei Männern, die Sex mit Männern haben, setzt sich weiter fort. Epidemiologisches Bulletin Nr. 2018; 46: 15.

Robert Koch-Institut. Syphilis in Deutschland im Jahr 2018 – Anstieg der Vorjahre stagniert auf hohem Niveau. Epidemiologisches Bulletin Nr. 2019; 50: 12.

Leitlinien für Diagnostik und Therapie der HIV-Infektion. Available from: https://daignet.de/site-content/hiv-leitlinien/leitlinien-1/deutsch-oesterreichische-leitlinien-zur-postexpositionellen-prophylaxe-der-hiv-infektion [Last accessed June 30, 2020].

Deutsch-Österreichische Leitlinien zur HIV-Präexpositionsprophylaxe. Available from: https://daignet.de/site-content/hiv-leitlinien/leitlinien-1/deutsch-oesterreichische-leitlinien-zur-hiv-praeexpositionsprophylaxe [Last accessed June 30, 2020].

Antragsformular. Available from: https://www.kvb.de/fileadmin/kvb/dokumente/Praxis/Formulare/E-H/KVB-FORM-Genehmigungsantrag-HIV-Praeexpositionsprophylaxe.pdf [Last accessed June 30, 2020].

Rothengatter S, Sehr T, Gholam P et al. Skin diseases and sexually transmitted diseases in HIV-infected patients on HAART compared to a non-infected population — results of a retrospective study. J Dtsch Dermatol Ges 2009; 7: 527–32.

Tan J, Pina A, Borges-Costa J. Skin diseases in the era of highly active antiretroviral therapy: a retrospective study of 534 patients. J Int Assoc Provid AIDS Care 2018; 17: 23595741752255.

Esser S. HIV und sexuell übertragbare Erkrankungen (STDS). In: Hoffmann C, Rockstroh JK (Hrsg.): HIV 2020/2021; Medizin Fokus Verlag, Hamburg, 2020; 537–46.

Chatziokokkinou P, Sotiropoulos K, Katoulis A et al. Seborrhoe dermatitis – an early and common skin manifestation in HIV patients. Acta Dermatovenerol Croat 2008; 16: 226–30.

Sullivan AK, Raben D, Reekie J et al. Feasibility and effectiveness of indicator condition guided testing for HIV: results from HIDES I (HIV Indicator Diseases across Europe Study). PLoS One 2013; 8(1): e52845.

Itin PH, Battegay M. Mucocutaneous infections in immunosuppression. Internist (Berl) 2009, 50(2): 150–9.

Friedman-Kien AE. Disseminated Kaposi’s sarcoma syndrome in young homosexual men. J Am Acad Dermatol 1981; 5: 468–71.

Gottlieb MS, Schröff R, Schanker HM et al. Pneumocystis carinii pneumonia and mucosal candidiasis in previously healthy homosexual men. N Engl J Med 1981; 305: 1425–31.

Calista D, Morri M, Stagno A, Boschini A. Changing morbidity of cutaneous diseases in patients with HIV after the introduction of highly active antiretroviral therapy including a protease inhibitor. Am J Clin Dermatol 2002; 3: 59–62.

Hartmann M. [Dermatological signs of HIV-infection]. MMW Fortschr Med 2018, 161(Suppl 2): 20–5.

Rudikoff D. The relationship between HIV infection and atopic dermatitis. Curr Allergy Asthma Rep 2002; 2: 275–81.

Coates SJ, Leslie KS. What’s new in HIV dermatology? F1000Res 2019; 8: F1000 Faculty Rev-980.

Mitsuyasu RT. Non-AIDS-defining malignancies in HIV. Top HIV Med 2008, 16: 117–21.

Patel P, Hanson DL, Sullivan PS et al. Incidence of types of cancer among HIV-infected persons compared with the general population in the United States, 1992–2003. Ann Intern Med 2008, 148: 728–36.

Silverberg MJ, Leyden W, Warton EM et al. HIV infection status, immunodeficiency, and the incidence of non-melanoma skin cancer. J Natl Cancer Inst 2013; 105(5): 350–60.

Omland SH, Ahlström MG, Gerstoft J et al. Risk of skin cancer in patients with HIV: A Danish nationwide cohort study. J Am Acad Dermatol 2018; 79(4): 689–95.

Palesky JM, Holly EA, Efirdc JT et al. Anal intraepithelial neoplasia in the HAART era among HIV-positive MSM. AIDS 2005, 19: 1407–14.

Esser S, Kreuter A, Oette M et al. German-Austrian guidelines on anal dysplasia and anal cancer in HIV-positive individuals: prevention, diagnosis, and treatment. J Dtsch Dermatol Ges 2015; 13: 1302–19.
29 Pineda CE, Berry JM, Jay N et al. High-resolution anoscopy targeted surgical destruction of anal high-grade squamous intraepithelial lesions: a ten-year experience. Dis Colon Rectum 2008, 51: 829–35; discussion 835–7.
30 Revollo B, Videla S, Llibre JM et al. Routine screening of anal cytology in HIV-infected subjects and the impact on invasive anal cancer. A prospective cohort study. Clin Infect Dis 2020; 71(2): 390–9.
31 Burgi A, Brodine S, Wegner S et al. Incidence and risk factors for the occurrence of non-AIDS-defining cancers among human immunodeficiency virus-infected individuals. Cancer 2005; 104: 1505–11.
32 Ameen M. Cutaneous markers of HIV infection and progression. Curr HIV Res 2010, 8: 450–5.
33 Imaz A, Pujol M, Barragan P et al. Community associated methicillin-resistant Staphylococcus aureus in HIV-infected patients. AIDS Rev 2010, 12: 153–63.
34 HIV-Leitlinien Stand 4/2019. Available from: www.daignet.de/site-content/hiv-therapie/leitlinien-1 [Last accessed June 30, 2020].
35 HIV Drug Interactions. Available from: https://www.hiv-druginteractions.org/ [Last accessed June 30, 2020].
1. Wie viele Menschen haben sich laut RKI in Deutschland 2019 neu mit HIV infiziert?
   a) 240
   b) 2.600
   c) 8.800
   d) 24.000
   e) 88.000

2. Welche Aussage zum HIV-Test ist richtig?
   a) Aufgrund der hohen Prävalenz sollten alle Menschen in Deutschland flächendeckend regelmäßig auf HIV getestet werden.
   b) Für die Diagnose einer HIV-Infektion reicht ein Suchtest.
   c) Allen Patienten mit HIV-Markererkrankungen sollte ein HIV-Test angeboten werden.
   d) Vor der Veranlassung eines HIV-Tests ist eine schriftliche Einwilligung des Patienten erforderlich.
   e) Eine HIV-Testberatung vor dem HIV-Test sollte vermieden werden, da der Patient sonst den Test aus Angst vor Diskriminierung ablehnt.

3. Welche Aussage zur Erstdiagnose HIV in Deutschland ist richtig?
   a) In Deutschland nimmt der Anteil der Late Presenter bei HIV-Erstdiagnose in den letzten Jahren deutlich ab.
   b) Besonders Dermatologen bieten ihren Patienten HIV-Tests an und stellen von allen Fachgruppen die meisten HIV-Erstdiagnosen.
   c) Die indikationsbezogene HIV-Testung bei Patienten mit HIV-assozierten Erkrankungen belastet das Laborbudget des veranlassenden Arztes extrem.
   d) Vor allem i.v.-Drogengebrauch ist für die unverändert hohe Zahl an HIV-Erstdiagnosen verantwortlich.
   e) Die späte HIV-Erstdiagnose ist einer der Hauptgründe für neue AIDS-Erkrankungen.

4. Welche Aussage zu HIV-Markererkrankungen ist richtig?
   a) Kaposi-Sarkome treten ausschließlich bei HIV-Infizierten auf.
   b) Das seborrhoische Ekzem kann eine HIV-Markererkrankung sein.
   c) Die orale Haarleukoplakie ist lebensbedrohlich und eine AIDS-definierende Erkrankung.
   d) Mollusca contagiosa im Kindesalter sind ein sicherer Hinweis auf eine HIV-Infektion.
   e) Bakterielle Geschlechtskrankheiten sind nicht mit einer erhöhten HIV-Inzidenz assoziiert.

5. Welche Aussage zur HIV-Prävention ist richtig?
   a) Aufgrund der hohen Infektiosität lässt sich eine Übertragung kaum verhindern.
   b) Die HIV-Exposition sollte vor mehr als 72 Stunden stattgefunden haben.
   c) Zunächst sollte das Ergebnis des HIV-Tests der exponierten Person abgewartet werden.
   d) Exsikkationsekzem
   e) Lichen ruber
   f) Follikulitiden
   g) Seborrhoisches Ekzem

6. Welche Kriterien sollten für die Einleitung einer PEP erfüllt sein?
   a) Die Indexperson sollte eine nachweisbare HIV-Viruslast haben.
   b) Das seborrhoische Ekzem kann eine HIV-Markererkrankung sein.
   c) Die orale Haarleukoplakie ist lebensbedrohlich und eine AIDS-definierende Erkrankung.
   d) Mollusca contagiosa im Kindesalter sind ein sicherer Hinweis auf eine HIV-Infektion.
   e) Bakterielle Geschlechtskrankheiten sind nicht mit einer erhöhten HIV-Inzidenz assoziiert.

7. Welche Aussage zur PrEP ist richtig?
   a) Eine Teilnahme an der PrEP-Vereinbarung ist für Dermatovenerologen nicht möglich.
   b) Bei HIV-negativen MSM mit einer STI in den letzten sechs Monaten ist eine PrEP-Beratung indiziert.
   c) Die PrEP kann HIV-negativen Personen mit Angst vor einer Ansteckung mit HIV verordnet werden, auch wenn diese kein besonderes HIV-Transmissionsrisiko haben.
   d) Da die PrEP bei Frauen weniger wirksam ist, ist die PrEP selbst für Frauen mit substanziellen HIV-Infektionsrisiko nicht geeignet.
   e) Voraussetzung für die Einleitung einer PrEP ist ein positiver HIV-Test.

8. Welche Erkrankung gehört eher nicht zu den vermehrt bei HIV-Infizierten beobachteten Dermatosen?
   a) Sterile eosinophile Pustulose Ofuji
   b) Exsikkationsekzem
   c) Lichen ruber
   d) Follikulitiden
   e) Kaposi-Sarkome

9. Welche der Aussagen zur HIV-Prävention durch PrEP und PEP ist richtig?
   a) Bei zuverlässigem Gebrauch der täglichen PrEP ist keinerlei Kondomgebrauch mehr nötig, um eine STI zu verhindern.
   b) PrEP besteht derzeit aus der Verwendung von 1 Tbl. 1 x täglich.
   c) Die PrEP ist ausschließlich für MSM indiziert.
   d) Die PrEP muss innerhalb von 48 Stunden nach Exposition begonnen werden.
   e) Der Klient muss sowohl die PEP als auch die PrEP privat bezahlen, da diese bisher grundsätzlich keine Kassenleistungen sind.
10. Welche der nachfolgenden Aussagen zu dermatologischen HIV-Markererkrankungen ist falsch?
   a) Die Exazerbation einer bekannten Psoriasis vulgaris kann ein Hinweis für das Vorliegen einer HIV-Infektion sein.
   b) Die orale Candidose ist pathognomonisch für eine HIV-Infektion.
   c) Die bazilläre Angiomatose gehört zu den seltenen Markerkrankungen der HIV-Infektion.
   d) Das Auftreten eines Herpes zoster über mehrere Dermatome sollte an eine bestehende Immunsuppression bei dem Patienten denken lassen.
   e) Patienten mit einer chronischen Hepatitis C sollte ein HIV-Test angeboten werden.

Liebe Leserinnen und Leser,
der Einsendeschluss an die DDA für diese Ausgabe ist der 31. März 2021.
Die richtige Lösung zum Thema „Infektiöse Exantheme im Kindesalter“ in Heft 10 (Oktober 2020) ist: (1e, 2b, 3c, 4d, 5a, 6d, 7e, 8a, 9b, 10c).
Bitte verwenden Sie für Ihre Einsendung das aktuelle Formblatt auf der folgenden Seite oder aber geben Sie Ihre Lösung online unter http://jddg.akademie-dda.de ein.