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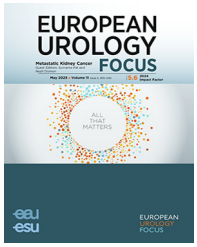

Mini Review

Managing Genital Herpes: A Mini-review for Urologists from the European Association of Urology Guidelines Panel for Urological Infections

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Abstract

Genital herpes (GH) is a prevalent, lifelong, sexually transmitted infection caused by herpes simplex virus types 1 and 2. Although traditionally managed by dermatologists and infectious disease specialists, GH is increasingly relevant to urologists owing to its clinical complexity and psychosocial impact. This mini-review by the European Association of Urology Guidelines Panel for Urological Infections summarizes updated evidence on GH epidemiology, diagnosis, treatment, and prevention strategies. Diagnosis remains challenging because of atypical presentations; polymerase chain reaction is the preferred diagnostic test. Management mainly relies on nucleoside analogs, with new therapies under investigation. Suppressive treatment reduces recurrences and transmission. Routine screening of asymptomatic individuals is not recommended. Effective counseling and partner notification are critical components of care.

Patient summary: Patients with genital herpes should receive clear information on the nature of the infection, the diagnostic process, and treatment options and preventive

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strategies. Urologists must play a key role in managing symptoms, reducing the risk of transmission, and supporting patients through education and counseling.

1. Background

Although traditionally considered the domain of dermatologists and infectious disease specialists, herpes simplex virus (HSV) infection is a clinical entity that urologists must be able to recognize and manage. Genital herpes (GH) is one of the most common causes of genital ulcerative disease worldwide [1]. It has a chronic, relapsing course and may present with atypical manifestations, leading to difficult diagnosis and management. Beyond its immediate clinical impact, HSV may carry psychological and social consequences for affected individuals. For this reason, urologists must be familiar with its epidemiology, diagnosis, therapeutic strategies, and preventive measures, including partner notification and counseling.

This review was undertaken as part of the 2025 update of the European Association of Urology (EAU) guidelines on urological infections. A structured literature search on genital HSV was performed for relevant articles published from 2014 to 2024. The databases searched included Medline, EMBASE, and the Cochrane Libraries. A total of 1024 unique records were identified, retrieved, and screened for relevance. Systematic reviews, meta-analyses, and randomized controlled trials (RCTs) published in English language on male patients aged >18 yr were included; females were excluded.

2. Etiology, epidemiology, and risk factors

GH is a lifelong sexually transmitted infection caused by HSV-1 and HSV-2 [2–4]. While HSV-2 has historically been the predominant strain in genital infections, HSV-1 is increasingly responsible for a growing proportion of cases, particularly in younger populations, largely because of changes in sexual behavior, including greater oral-genital contact. Currently, HSV-1 accounts for approximately one-third of GH cases, while HSV-2 is responsible for the remaining two-thirds. HSV-2 seroprevalence rates vary widely, ranging from 0% to 92.9% globally, with a median of between 11.3% and 12.1% in general populations [3,4]. HSV-1 seroprevalence is even higher, often exceeding 70% in adult populations, and up to 25% of new HSV-1 infections in the group aged 15–49 yr are genital [2]. The incidence rate is approximately 5.6 per 100 person-years for HSV-1, and ranges from 0.1 to 1.3 per 100 person-years for HSV-2 [2–4]. Certain populations are at higher risk, including men who have sex with men, patients who are positive for human immunodeficiency virus, and individuals with multiple sexual partners. Rural residence and unprotected sex are also recognized risk factors. Once acquired, both HSV-1 and HSV-2 establish lifelong latency in neural ganglia, with periodic reactivations that can lead to symptomatic recurrences or asymptomatic viral shedding that can contribute to silent transmission.

3. Diagnosis

GH diagnosis is often clinically challenging because lesions may be absent at the time of presentation. When lesions are present, classic findings include painful, erythematous, vesicular, or ulcerative lesions that are often recurrent. However, atypical presentations such as nodular, hypertrophic, verrucous, vegetative, or exophytic lesions can occur, with potential to mimic other dermatological diseases or neoplastic processes (Table 1). Whenever lesions are present, a diagnostic swab should be collected, with polymerase chain reaction testing the preferred method owing to its superior sensitivity and rapid results [5]. Culture remains an alternative but is less sensitive, particularly for healing lesions. HSV serology, especially Western blotting, can detect previous exposure to HSV-1 or HSV-2 but is less useful in diagnosing active infections. Serology testing is not recommended in asymptomatic individuals. Point-of-care tests have recently emerged, but they currently lack the accuracy and quantification needed for routine clinical use [6].

4. Management

First-line GH treatment includes nucleoside analogs [1] such as aciclovir (400 mg orally 3 times daily for 10 d, or 200 mg orally 5 times daily for 10 d) and valaciclovir (500 mg orally twice daily for 10 d), which reduce viral replication, symptom severity, and duration (Table 1). More recent agents such as pritelivir and amenamevir are under investigation, offering potential advantages in terms of dosing and resistance profiles. While short-term recurrence (within 1 yr

Table 1 – Diagnostic approaches and therapeutic regimens for genital herpes simplex virus (HSV) infection

Diagnosis	Comments
Clinical	Painful, erythematous, vesicular, or ulcerative lesions, often recurrent. Atypical presentation: nodular, hypertrophic, verrucous, vegetative, or exophytic lesions
Swab	Polymerase chain reaction testing preferred over culture
Serologic tests	Western blotting can detect previous exposure to HSV-1 or HSV-2 but is less useful in diagnosing active infections
Antimicrobial therapy	**Dosage**
First clinical episode	
Aciclovir	400 mg orally t.i.d. for 10 d, or 200 mg orally 5 times daily for 10 d
Valaciclovir	500 mg orally b.i.d. for 10 d
Recurrent genital HSV	
Aciclovir	400 mg orally t.i.d. for 5 d, or 800 mg orally b.i.d. for 5 d, or 800 mg orally t.i.d. for 2 d
Valaciclovir	500 mg orally b.i.d. for 3 d

HSV = herpes simplex virus; b.i.d. = twice daily; t.i.d. = three times daily.

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after an initial outbreak) remains common (27–48%), daily suppressive prophylactic therapy significantly reduces both symptomatic outbreaks and asymptomatic shedding. Topical antiviral treatments play a minor role. Agents such as topical aciclovir and tenofovir show limited benefits, and immunomodulatory drugs such as resiquimod have not demonstrated clinical utility. However, CS21, a novel topical barrier gel, has shown some promise in symptom control and in reducing progression [7]. Despite extensive research, no vaccine has yet proven to be effective in either the prevention or treatment of HSV infections. Several vaccine candidates (eg, GEN-003 and HSV-529) have shown immunogenicity but failed to translate into meaningful clinical efficacy [8]. Photodynamic therapy has demonstrated limited benefit in small studies [9]. It has been suggested that melatonin has beneficial effects in treating recurrent GH as monotherapy or in addition to aciclovir; further data from larger cohorts are awaited before its use can be recommended in routine clinical practice.

5. Screening and follow-up

Routine HSV screening for asymptomatic individuals is not recommended because of the high prevalence and psychological burden associated with a positive diagnosis. Testing is justified in symptomatic patients or when a sexual partner is known to have GH; in the latter case, patients should consult a physician for a clinical examination and undergo a swab test if lesions or micro-lesions are present. Patient self-collected swabs are emerging as a useful tool for monitoring viral shedding and assessing response to therapy. Correlation of swab results with clinical recurrence means that these swabs are a promising option for future management strategies. Follow-up in HSV infection primarily focuses on management of recurrences and patient education. Patients should be counseled on the chronic nature of the disease, the importance of adherence to therapy, and the strategies to apply to reduce transmission, including the use of condoms. Contact tracing is essential but challenging because of asymptomatic shedding and delayed diagnosis. Nevertheless, discussion of recent sexual contacts and advising them to seek medical evaluation is a core component of responsible HSV management by patients.

6. Conclusions

GH is a common but often underestimated condition that leads to significant clinical and public health challenges. For urologists, awareness of the diverse presentations, diagnostics, and treatment options for GH is essential. Effective patient counseling and preventive strategies, including education and partner management, are integral steps to reducing the disease burden. As our understanding of HSV continues to evolve, urologists must remain vigilant and proactive in integrating current evidence into everyday clinical practice. As previously done for other infectious diseases that are often challenging for urologists [10] and commonly referred to other specialists, this mini-review aims to serve as a brief and practical guide to help urologists manage GH with confidence in their clinical practice.

Conflicts of interest: Gernot Bonkat reports consultation fees from Janssen-Cilag AG, OM-Pharma, IBSA, Zambon SpA, and Sun Pharma; speaker honoraria from Zambon SpA, OM-Pharma, IBSA, Bionorica SE, Hoechst Marion Roussel, and Sun Pharma; and fellowship and travel grants from Sun Pharma, OM-Pharma, IBSA, and Bionorica SE. Suzanne Geerlings reports an advisory board role for Immunotek. Jennifer Kranz reports consultation fees from Bionorica, GSK, and Shionogi; speaker honoraria from Bionorica, GSK, Janssen-Cilag, MSD, and Apogepha Arzneimittel GmbH; trial participation for Janssen-Cilag; and research grants from DFG. José Medina-Polo reports speaker honoraria from Astellas, Boston Scientific, GSK, and Q-Pharma. Fabian Stangl reports a speaker honorarium from OM-Pharma; fellowship and travel grants from Janssen-Cilag and OM-Pharma; and research grants from Repha Pharma. Laila Schneidewind reports consultation fees from Bristol-Myers Squibb, MSD Phama, and GSK; a speaker honorarium from Bionorica; fellowship and travel grants from Apogepha and Debiopharm; research grants from DFG, Monika-Kutzner Foundation, and DFIT e.V.; and panel membership for the German AWMF S3 guidelines on urethritis and uncomplicated urinary tract infections. Rajan Veeratterapillay reports travel and fellowship grants from Ipsen. Florian M.E. Wagenlehner reports a leadership position as Director of the Clinic of Urology, Pediatric Urology and Andrology for Justus-Liebig-University; consultation fees from Achaogen, Bionorica, GSK, Janssen, Klosterfrau, Pfizer, MIP Pharma, Shionogi, Spero, VenatorRX, and OM-Pharma; speaker honoraria from Astellas, AstraZeneca, Bionorica, GSK, Janssen, Klosterfrau, MSD, Pfizer, MIP Pharma, and OM-Pharma; trial participation for GSK, Klosterfrau, Select Immune, Janssen, and VenatoRx; and research grants from DFG and DZIF. The remaining authors have nothing to disclose.

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