Complete Summary

GUIDELINE TITLE

Vulvovaginal candidiasis (VVC). In: Sexually transmitted infections: UK national screening and testing guidelines.

BIBLIOGRAPHIC SOURCE(S)

White DJ, Vanthuyne A. Vulvovaginal candidiasis (VVC). In: Ross J, Ison C, Carder C, Lewis D, Mercey D, Young H. Sexually transmitted infections: UK national screening and testing guidelines. London (UK): British Association for Sexual Health and HIV (BASHH); 2006 Aug. p. 68-75. [32 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Vulvovaginal candidiasis (VVC)

GUIDELINE CATEGORY

Diagnosis

CLINICAL SPECIALTY

Family Practice
Infectious Diseases
Internal Medicine

Obstetrics and Gynecology
Urology

INTENDED USERS

Advanced Practice Nurses
Clinical Laboratory Personnel
Nurses
Physician Assistants
Physicians
Public Health Departments

GUIDELINE OBJECTIVE(S)

- To provide advice on what tests for vulvovaginal candidiasis (VVC) are most appropriate in a United Kingdom (UK) genitourinary (GU) clinic setting (excluding human immunodeficiency virus [HIV]-infected patients)
- To provide a basis for audit
- To support clinics when bidding for additional resources to meet national standards

TARGET POPULATION

Women of reproductive age in the United Kingdom presenting with suspected vulvovaginal candidiasis (VVC) infection

INTERVENTIONS AND PRACTICES CONSIDERED

1. Assessment of symptoms
2. Sample collection (speculum or self-collected swabs)
3. *Candida* testing (microscopy and culture; Gram stain or wet mount slide preparation; direct plating [liquid culture not recommended]; speciation)
4. Antifungal sensitivity (not recommended for uncomplicated VVC)
5. Reporting results
6. Interpretation of results
7. Follow-up testing for cure

MAJOR OUTCOMES CONSIDERED

Reliability of test methods

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The Cochrane database was searched for articles on exp Candidiasis, Vulvovaginal. Medline (1966-Jan 2003) was searched using exp Candidiasis, Vulvovaginal/di [Diagnosis] and exp Candidiasis, Vulvovaginal (1990-Jan 2003). The resulting articles were handsearched and sorted. Further references were obtained from these articles. References were also obtained from Candida and Candidosis, a review and bibliography by Odds. This book contains an extensive bibliography for papers predating 1988.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

Ia: Evidence obtained from meta-analysis of randomised controlled trials

Ib: Evidence obtained from at least one randomised controlled trial

IIa: Evidence obtained from at least one well designed controlled study without randomisation

IIb: Evidence obtained from at least one other type of well designed quasi-experimental study

III: Evidence obtained from well designed non-experimental descriptive studies

IV: Evidence obtained from expert committee reports or opinions and/or clinical experience of respected authorities

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The guidelines have been developed following the methodological framework of the Appraisal of Guidelines Research and Evaluation instrument (AGREE - adapted as described in *Int J STD and AIDS* 2004 15:297-305).

The extent to which the guideline represents the views of intended users has been addressed primarily by the authorship coming from the multidisciplinary membership of the Bacterial Special Interest Group (BSIG). As practising clinicians the authors were able to draw on their experience of applying the tests to symptomatic and asymptomatic patients but it was not feasible to obtain formal input from representative patients.

No stakeholders were involved in developing the guideline.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Grading of Recommendations

A. Evidence at level Ia or Ib
B. Evidence at level IIa, IIb, or III
C. Evidence at level IV

COST ANALYSIS

A published cost analysis was reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

After drafting, other health care professionals and professional bodies in genitourinary (GU) medicine were asked to comment, the draft guidelines posted on the British Association for Sexual Health and HIV (BASHH) website for 3 months, and all comments reviewed before final publication.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions for the level of evidence (**I-IV**) and grade of recommendation (**A-C**) are provided at the end of the "Major Recommendations" field.

Who to Test and Treat?

Screening is not required for asymptomatic women (**Evidence Level IV, Grade of Recommendation C**).

Episodic Vulvovaginal Candidiasis (VVC)

Episodic VVC includes normal women with mild-moderate symptoms and no history of persistent or recurrent symptoms (**Evidence Level IV, Grade of Recommendation C**).

Symptoms suggestive of episodic VVC include external dysuria, vulval pruritus, swelling or redness. Signs include vulval oedema, fissures, excoriation, or thick curdy discharge. The vaginal pH is usually normal (**Evidence Level III, Grade of recommendation B**).

- Testing is recommended for episodic VVC whenever possible (**Evidence Level III, Grade of Recommendation B**).
- Treatment is clearly indicated for symptomatic women who are microscopy positive and/or those who are culture positive (**Evidence Level III, Grade of Recommendation B**).
- Treatment on the basis of symptoms alone is common clinical practice but results in the over-treatment of a large number of women (**Evidence Level III, Grade of Recommendation B**).

Complicated VVC

This includes; severe episodic VVC, persistent non-*Candida albicans* infection, recurrent VVC and those with underlying host abnormality (e.g., pregnancy, HIV infection and diabetes) (**Evidence Level IV, Grade of Recommendation C**).

As well as microbiological testing women with chronic symptoms need a careful history and examination. Particular attention needs to be paid to alternative diagnoses, most commonly vulval eczema/dermatitis. Possibilities otherwise include other causes of vaginal discharge (e.g., recurrent bacterial vaginosis and also recurrent herpes, vulval vestibulitis syndrome and other vulvar dermatoses) (**Evidence Level III, Grade of Recommendation B**). More than one condition may occur and this may vary with time (e.g., the patient may cycle between bacterial vaginosis and VVC). A general examination of the skin can sometimes be very helpful (**Evidence Level IV, Grade of Recommendation C**).

Recommended Tests

Except in research settings samples are almost universally taken with a cotton tipped swab from the vaginal wall.

Possible Uncomplicated VVC

In the context of specialist services offering a comprehensive sexual health service routine microscopy and culture is the standard of care for symptomatic women (**Evidence Level III, Grade of Recommendation B**).

A vaginal swab taken from the anterior fornix (**Evidence Level III, Grade of Recommendation B**).

- Gram or wet film examination (**Evidence Level III, Grade of Recommendation B**)

- Directly plated to solid fungal media. Speciation to albicans/non albicans is strongly preferred (**Evidence Level III, Grade of Recommendation B**).
- Vaginal pH is not useful in the diagnosis of VVC which can coincide with bacterial vaginosis (BV) (**Evidence Level IV, Grade of Recommendation C**).

Blind (**Evidence Level III, Grade of Recommendation B**) or self taken swabs (**Evidence Level IV, Grade of Recommendation C**) may be useful if directly taken swabs are not easily taken and if examination is not deemed necessary.

Complicated Disease

Tests for individual episodes as above.

- Speciation to albicans/non albicans is essential and should be performed to species level if a non-albicans species is isolated on more than one occasion (**Evidence Level III, Grade of Recommendation B**).
- Self taken swabs are useful in obtaining culture evidence of recurrent/persistent VVC. These can be taken when the patient is symptomatic before treatment and can be combined with a symptom diary as part of the assessment process (**Evidence Level IV, Grade of Recommendation C**).

Recommended Sites for Testing

- If a speculum is being passed then a cotton tipped swab should be used to take a sample from the anterior fornix (**Evidence Level III, Grade of Recommendation B**).
- If speculum is not being passed then blind (**Evidence Level III, Grade of Recommendation B**) or self taken swabs may be used (**Evidence Level IV, Grade of Recommendation C**)

Processing of Samples

Microscopy should be of either a Gram stained or Wet mount preparation (**Evidence Level III, Grade of Recommendation B**). Culture should be from a directly plated solid fungal media (**Evidence Level III, Grade of Recommendation B**). Chromogenic agar if available enables easy identification of species and mixed species infection and is preferred for investigation for complicated VVC (**Evidence Level III, Grade of Recommendation B**).

Liquid culture media are not recommended as they do not allow semi-quantitation. Other methods of testing for Candida such as latex agglutination have not made their way into routine clinical practice. PCR is currently of use only as a research tool.

Antifungal Sensitivities

There is no proven utility of antifungal sensitivity testing for complicated VVC (**Evidence Level III, Grade of Recommendation B**). It is possibly indicated for women with:

- A chronic immunological abnormality (**Evidence Level III, Grade of Recommendation B**)
- Repeated isolation of a non-albicans yeast (**Evidence Level IV, Grade of Recommendation C**).

Reporting of Results

Microscopy should be reported as fungal pseudohyphae and/or blastospores present or absent (**Evidence Level III, Grade of Recommendation B**).

Cultures should be reported as (**Evidence Level III, Grade of Recommendation B**):

- Negative
- Light growth <10 colonies per plate
- Moderate growth 10 to 99 colonies per plate
- Heavy growth $\geq$100 colonies per plate

Interpretation of Results

In interpreting results the possibility of *Candida* being an "innocent bystander" needs to be considered (i.e., that symptoms from another condition are wrongly attributed to coincidental asymptomatic isolation of *Candida*) (**Evidence Level IV, Grade of Recommendation C**).

Isolation of *Candida* is common in asymptomatic women. Treatment is not indicated in the absence of symptoms (**Evidence Level III, Grade of Recommendation B**).

Symptoms correlate with hyphal burden, and the presence of pseudohyphae and/or blastospores on light microscopy implies a relatively high fungal burden. Microscopy is therefore relatively specific but insensitive in the diagnosis of VVC (**Evidence Level III, Grade of Recommendation B**). In contrast culture is sensitive but not specific. Symptoms are not clearly associated with colony counts of <10 colonies/plate (**Evidence Level III, Grade of Recommendation B**).

Severity of individual episodes is based on clinical and not laboratory data. Severe disease may however require more intensive treatment **Evidence Level Ib, Grade of Recommendation A**).

Non-albicans species, most commonly *C. glabrata*, are isolated in 5-10% of episodic VVC but cannot be distinguished from *C. albicans* on clinical criteria (**Evidence Level III, Grade of Recommendation B**). They are inherently relatively azole resistant and may not respond well to conventional courses of antifungal treatment (**Evidence Level III, Grade of Recommendation B**).

Recurrent VVC is defined as four or more attacks of VVC in a year (**Evidence Level IV, Grade of Recommendation C**). It is usually due to *C. albicans*. Although there is evidence of persistence of infection between attacks using PCR (so called vaginal relapse) culture is negative between attacks. A diagnosis of recurrent VVC therefore requires either positive microscopy or a moderate/heavy

growth of *C. albicans*, when symptomatic, on at least two occasions with treatment and at least partial resolution of symptoms in between (**Evidence Level IV, Grade of Recommendation C**).

Persistent VVC is usually due to non-*C. albicans* yeast. Risk factors include underlying host abnormality and being peri-menopausal. Diagnosis of persistent/chronic non-albicans infection requires isolation of the same species of yeast on at least two concurrent samples and treatment on the first occasion (**Evidence Level IV, Grade of Recommendation C**).

Recommendation for Test of Cure

Tests of cure are only indicated after the treatment of persistent non-albicans infection (**Evidence Level IV, Grade of Recommendation C**). Proof of cure requires at least two negative cultures at least a week after treatment and with an interval of at least a week between cultures (**Evidence Level IV, Grade of Recommendation C**).

Definitions:

Levels of Evidence

Ia: Evidence obtained from meta-analysis of randomised controlled trials

Ib: Evidence obtained from at least one randomised controlled trial

IIa: Evidence obtained from at least one well designed controlled study without randomisation

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III: Evidence obtained from well designed non-experimental descriptive studies

IV: Evidence obtained from expert committee reports or opinions and/or clinical experience of respected authorities

Grading of Recommendations

A. Evidence at level Ia or Ib
B. Evidence at level IIa, IIb, or III
C. Evidence at level IV

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for selected recommendations (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate diagnosis of *Trichomonas vaginalis* infection

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- The diagnosis of vulvovaginal candidiasis (VVC) is syndromic. Diagnostic criteria may therefore vary with the clinical setting. These guidelines are specifically written for women of reproductive age presenting to departments of Genito-urinary medicine or Sexual Health. They are written on the assumption that on-site facilities are available for microscopy with direct inoculation of culture media and incubation of microbiological samples.
- In other settings the effects of transportation and the use of transport media have not been investigated but it is likely that germination and growth will occur thereby increasing the sensitivity and reducing specificity. If transport media are used then slides for microscopy should be prepared before inoculation.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Audit Criteria/Indicators

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

White DJ, Vanthuyne A. Vulvovaginal candidiasis (VVC). In: Ross J, Ison C, Carder C, Lewis D, Mercey D, Young H. Sexually transmitted infections: UK national screening and testing guidelines. London (UK): British Association for Sexual Health and HIV (BASHH); 2006 Aug. p. 68-75. [32 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2006 Aug

GUIDELINE DEVELOPER(S)

British Association for Sexual Health and HIV - Medical Specialty Society

SOURCE(S) OF FUNDING

No specific or external funding was sought or provided in the development of this guideline.

GUIDELINE COMMITTEE

Screening Guidelines Steering Committee
Clinical Effectiveness Group (CEG)

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

An Vanthuyne has no conflicts of interest.

David J. White has received a research grant from Astra Zeneca.

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from British Association for Sexual Health and HIV Web Site.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Specifications for the development of UK guidelines on the management of sexually transmitted infections (STIs) and closely related conditions 2005. London (UK): British Association of Sexual Health and HIV (BASHH); 2005. 14 p. Electronic copies: Available in Portable Document Format (PDF) from the British Association for Sexual Health and HIV Web site.

Additionally, auditable outcome measures can be found in the original guideline document.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on June 24, 2008. The information was verified by the guideline developer on October 20, 2008.

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