Sexually Transmitted Infections

Urethritis

Organisms

**Gonococcus**

**Chlamydia**

Mycoplasma genitalium*

Trichomonas vaginalis

Adenovirus

Herpes simplex virus

* not routinely tested for in UK (is done in Australia and Netherlands)

Urethral smear – gram staining (gram-negative diplococci = gonococcus)

Dipstick testing for leucocytes a/w high NPV and low PPV

First voided urine (FVU) for NAAT (nucleic acid amplification testing) for chlamydia

FVU for gram-stain and culture +/- NAAT for gonococcus

FVU should be after urine holding for at least 2 hours

Management based on organism:

**Chlamydia**

- Azithromycin 1g PO stat dose
- Doxycycline 100mg PO bd for 7-14 days

Alternatively:

- Erythromycin 500mg PO qds for 14 days
- Ofloxacin 200mg PO bd for 7 days

**Gonococcus**

- Cefixime 400mg PO stat dose

Previously quinolones but high rates of resistance

Current recommendation to cover both organisms – give azithromycin and cefixime as above stat and observe that medication taken. Alternatively 1.5g azithromycin to cover both organisms (however more poorly tolerated and relapse rates higher than combination of meds)

EAU guidelines (2009)

The following guidelines for therapy comply with the recommendations of the Center for Disease Control and Prevention (9-11). The following antimicrobials can be recommended for the treatment of gonorrhoea:

- Cefixime, 400 mg orally as a single dose
- Ceftriaxone, 125 mg intramuscularly (with local anaesthetic) as a single dose
- Ciprofloxacin, 500 mg orally as single dose
- Ofloxacin, 400 mg orally as single dose
- Levofloxacin, 250 mg orally as single dose.

Please note that fluoroquinolones, such as ciprofloxacin, levofloxacin, and ofloxacin, are contraindicated in adolescents (<18 years) and pregnant women.

As gonorrhoea is frequently accompanied by chlamydia infection, an antichlamydial active therapy should be added. The following treatments have been successfully applied in C. trachomatis infections.

As first choice of treatment:

- Azithromycin, 1 g orally as single dose
- Doxycycline, 100 mg orally twice daily for 7 days.

As second choice of treatment:

- Erythromycin base, 500 mg orally four times daily for 7 days
- Erythromycin ethylsuccinate, 800 mg orally four times daily for 7 days
- Ofloxacin, 300 mg orally twice daily for 7 days
- Levofloxacin, 500 mg orally once daily for 7 days.
Sexually transmitted infections

Genital ulceration

<table>
<thead>
<tr>
<th>Disease</th>
<th>Lesions</th>
<th>Lymphadenopathy</th>
<th>Systemic Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary syphilis</td>
<td>Painless, indurated, with a clean base, usually singular</td>
<td>Nontender, rubbery, non-suppurative, bilateral lymphadenopathy</td>
<td>None</td>
</tr>
<tr>
<td>Genital herpes</td>
<td>Painful vesicles, shallow, usually multiple</td>
<td>Tender, bilateral inguinal adenopathy</td>
<td>Present during primary infection</td>
</tr>
<tr>
<td>Chancroid</td>
<td>Tender papule, then painful, undermined purulent ulcer, single or multiple</td>
<td>Tender, regional, painful, suppurative nodes</td>
<td>None</td>
</tr>
<tr>
<td>Lymphogranuloma</td>
<td>Small, painless vesicle or papule progresses to an ulcer</td>
<td>Painful, matted, large nodes develop, with fistula tracts</td>
<td>Present after genital lesion heals</td>
</tr>
</tbody>
</table>

Herpes simplex

HSV-type 2 in ~90% cases; HSV type 1 in 10%
Incubation period up to 4 weeks
Asymptomatic viral shedding for up to 3 months
HSV-2 a/w higher recurrence rate
Diagnosis clinical and fluid for viral culture or NAAT
Topical Rx ineffective
Oral acyclovir 400mg tds for 10 days (primary infection) and 5 days for recurrences

Chancroid

*Haemophilus ducreyi*
Incubation period up to 3 weeks
Tender papule which breaks down
Suppurative inguinal nodes
Difficult to culture – NAAT better
Azithromycin 1g orally single dose or cipro for 3 days

Syphilis

*Treponema pallidum*
Incubation period 10-90 days
Primary
Single painless ulcer at 3 weeks and lasts 4-6 weeks. Bilateral rubbery nodes. No systemic features
May result in latent or secondary disease
Secondary
10 weeks to 2 yrs after primary syphilis
Maculopapular rash with condylamata in skin creases
Tertiary
One third of untreated cases. Systemic disease characterised by gummas
Diagnosis
Fluid from primary and secondary lesions
Dark field microscopy
Direct fluorescent antibody testing
Serology
VDRL (non-specific antibody testing)
Sensitivity
86% for primary syphilis
100% secondary syphilis
95% tertiary syphilis
False positive rate ~1-2%. Therefore confirm with treponemal antibody tests
If positive must confirm with T pallidum specific tests (TP-particle agglutination test or TP antibody testing)
NB. T pallidum antibody testing remain positive for life. VDRL correlates with disease activity and becomes negative after ~ one year

Treatment
Primary and secondary syphilis
Benzypenicillin G 2.4MU intramuscularly single dose
(a/w systemic Jerisch-Herxheimer reaction for 24 hours after administration – normal & responds to fluids and NSAIDs)
Alternatively doxycycline 100mg bd for 14 days
Tertiary syphilis
Procaine penicillin G 2.4MU im od and probenecid orally 500mg qds for 10-14 days

Lymphogranuloma venereum
Chlamydia trachomatis subtypes L1, L2, L3
Incubation period 3-30 days
Painless ulcer with painful matted suppurative lymphadenopathy
3 weeks with doxycycline 10mg po bd or erythromycin 500mg qds

<table>
<thead>
<tr>
<th>Female vaginal discharge</th>
<th>Vaginal Discharge</th>
<th>pH</th>
<th>WBC</th>
<th>Microscopy</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>White, thick, smooth</td>
<td>≤ 4.6</td>
<td>Absent</td>
<td>Lactobacilli</td>
<td>None</td>
</tr>
<tr>
<td>Candidiasis</td>
<td>White, thick, curdy</td>
<td>≤ 4.6</td>
<td>Absent</td>
<td>Mycelia</td>
<td>Vulvar pruritus, external or superficial dysuria</td>
</tr>
<tr>
<td>Trichomonas</td>
<td>Frothy or purulent</td>
<td>≥ 4.6</td>
<td>Present</td>
<td>Motile trichomonads present</td>
<td>Vulvar erythema and edema, punctate strawberry lesions on cervix</td>
</tr>
<tr>
<td>Neisseria gonorrhoeae</td>
<td>None or mucopurulent discharge from cervix</td>
<td>≥ 4.6</td>
<td>Present</td>
<td>Gram-negative diplococci within or adjacent to polymorphonuclear leukocytes on Gram stain</td>
<td>Vaginal and pelvic discomfort, dysuria, most often asymptomatic</td>
</tr>
<tr>
<td>Chlamydia trachomatis</td>
<td>None or mucopurulent discharge from cervix</td>
<td>≥ 4.6</td>
<td>Present</td>
<td>Organisms not visualized</td>
<td>Vaginal and pelvic discomfort, dysuria, most often asymptomatic</td>
</tr>
<tr>
<td>Bacterial Vaginosis</td>
<td>Thin, white homogeneous</td>
<td>≥ 4.6</td>
<td>Absent</td>
<td>Paucity of lactobacilli (75% of patients)</td>
<td>Fishy odor and increased vaginal discharge</td>
</tr>
</tbody>
</table>

Trichomonas vaginalis
50% asymptomatic
Green foul smelling vaginal discharge with irritation, dyspareunia and strawberry cervix/vagina
Motile protazoa identifiable on wet mount preparations
Alternatively culture, immunoassay or NAATs
Sexually transmitted infections

Rx = single dose metronidazole 2g; repeat testing highly recommended. 500mg bd 7 days for non-responders

NB. BV not a sexually transmitted infection. Caused by Bacteriodes spp. Rx with metronidazole
Urological manifestations of HIV/AIDS

Life expectancy in African countries with high population prevalence has fallen due to HIV/AIDS. Some estimate a decrease as much as 15 years by 2000. Incidence in USA has reached plateau ~40,000 new infections/yr in US. Without treatment:

- HIV infection median life expectancy 8 -12 years
- AIDS median life expectancy 2 – 3 years

Death rates in developed countries falling rapidly due to highly-active antiretroviral combination therapy (HAART).

Despite HAART HIV cannot currently be eradicated (areas of poor drug penetration allow reservoirs of evasion).

Diagnosis of HIV:
- HIV RNA detectable from day 12 Sensitivity 100%; specificity 97%
- HIV antibody testing (ELISA, W Blot) 100% patients positive at 6 weeks

Staging of disease:
- Stage 1 Asymptomatic HIV infection
  Persistent generalised lymphadenopathy
- Stage 2 Weight loss > 10%
  Skin infections or URTI
- Stage 3/4 See appendix for index conditions

Monitoring disease:
- Plasma HIV RNA levels correlate with clinical stage
  Rapid fall with HAART a/w good prognosis; rising levels indicate treatment relapse
- CD4 count

Urological considerations:

(i) STIs - especially HSV - common underlying presentation of HIV
(ii) Urolithiasis
  Typically calcium stones
  Occasionally 2’ protease inhibitors – most common indinavir
  Indinavir stones form at pH 7 and dissolve at pH 4
  Not seen on plain KUB or CT
  Conservative therapy initially recommended
  Failed conservative Mx mandates ureteroscopy

(iii) HIVAN
  HIV associated nephropathy
  Glomerular disease with proteinuria and renal impairment
  Blacks >> whites (12:1)
  Third commonest cause of ESRF in blacks in certain parts of US
  Bx – focal segmental glomerulosclerosis
  Rx – HAART +/- dialysis

(iv) Neoplasms
  Kaposi’s sarcoma (HHSV 8)
  Non-Hodgkin’s lymphoma (EBV)
  SCC cervix, anus, penis (HPV mediated)
  Testicular tumours more common (lymphoma)
Appendix

**Table 1. Revised WHO clinical staging of HIV/AIDS for adults and adolescents**

<table>
<thead>
<tr>
<th>Primary HIV infection</th>
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</thead>
<tbody>
<tr>
<td>Asymptomatic</td>
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<tr>
<td>Acute retroviral syndrome</td>
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</table>

<table>
<thead>
<tr>
<th>Clinical stage 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymptomatic</td>
</tr>
<tr>
<td>Persistent generalized lymphadenopathy (PGL)</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Clinical stage 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate unexplained weight loss (&lt;10% of presumed or measured body weight)</td>
</tr>
<tr>
<td>Recurrent respiratory tract infections (RTIs, sinusitis, bronchitis, otitis media, pharyngitis)</td>
</tr>
<tr>
<td>Herpes zoster</td>
</tr>
<tr>
<td>Angular cheilitis</td>
</tr>
<tr>
<td>Recurrent oral ulcerations</td>
</tr>
<tr>
<td>Ulcerative gingivitis or periodontitis</td>
</tr>
<tr>
<td>Seborrhoeic dermatitis</td>
</tr>
<tr>
<td>Fungal nail infections of fingers</td>
</tr>
</tbody>
</table>

**Clinical stage 3**

**Conditions where a presumptive diagnosis can be made on the basis of clinical signs or simple investigations**

- Severe weight loss (>10% of presumed or measured body weight)
- Unexplained chronic diarrhoea for longer than one month
- Unexplained persistent fever (intermittent or constant for longer than one month)
- Oral candidiasis
- Oral hairy leukoplakia
- Pulmonary tuberculosis (TB) diagnosed in last two years
- Severe presumed bacterial infections (e.g., pneumonia, empyema, pyomyositis, bone or joint infection, meningitis, bacteremia)
- Acute necrotising ulcerative stomatitis, gingivitis or periodontitis

**Conditions where confirmatory diagnostic testing is necessary**

- Unexplained anaemia (<8 g/dl), and or neutropenia (<500/mm³) and or thrombocytopenia (<50,000/mm³) for more than one month

<table>
<thead>
<tr>
<th>Clinical stage 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV wasting syndrome</td>
</tr>
<tr>
<td>Pneumocystis pneumonia</td>
</tr>
<tr>
<td>Recurrent severe or radiological bacterial pneumonia</td>
</tr>
<tr>
<td>Chronic herpes simplex infection (orolabial, genital or anorectal of more than one month’s duration)</td>
</tr>
<tr>
<td>Oesophageal candidiasis</td>
</tr>
<tr>
<td>Extrapulmonary TB</td>
</tr>
<tr>
<td>Kaposis’s sarcoma</td>
</tr>
<tr>
<td>Central nervous system (CNS) toxoplasmosis</td>
</tr>
<tr>
<td>HIV encephalopathy</td>
</tr>
</tbody>
</table>

**Conditions where confirmatory diagnostic testing is necessary:**

- Extrapulmonary cryptococcosis including meningitis
- Disseminated non-tuberculous mycobacteria infection
- Progressive multifocal leukoencephalopathy (PML)
- Candida of trachea, bronchi or lungs
- Cryptosporidiosis
- Isosporiasis
- Visceral herpes simplex infection
- Cytomegalovirus (CMV) infection (retinitis or of an organ other than liver, spleen or lymph nodes)
- Any disseminated mycosis (e.g., histoplasmosis, coccidioidomycosis, penicilliosis)
- Recurrent non-tuboidal salmonella septicemia
- Lymphoma (cerebral or B cell non-Hodgkin)
- Invasive cervical carcinoma
- Visceral leishmaniasis

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