Sexually transmitted infections in children and adolescents

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Abstract

The issue of sexually transmitted infections (STIs) in children is a complex area as there are many diverse issues to consider. These include the age and developmental stage of the child, the various methods of transmission (sexual and non-sexual), and whether sexual transmission is consensual, abusive or exploitative. One has to bear in mind not only the child's own rights but also the family context and the public interest. The definition of a 'child' varies and may apply to an infant or to a 17-year-old adolescent. STIs can manifest in different ways in different age groups. The various methods of transmission of STIs in children and young people, and their relationship to child sexual abuse (CSA), are poorly researched, but STIs can be an indicator of CSA. The need for assessment for CSA and the conflict between child protection and the rights of young people to a confidential sexual health service are all key issues when dealing with STIs in the young.

Keywords Adolescents; children; child sexual abuse; chlamydia; confidentiality; conjunctivitis; gonorrhoea; HIV; HPV; sexually transmitted infection; STIs

What's new?

- Continuing high incidence of STIs in adolescents
- Non-invasive testing and increased use of nucleic acid amplification tests for STI diagnosis
- HIV-infected children surviving into adolescence
- Vaccination against human papillomavirus
- Increasing emphasis on child protection in sexually active young people
- Evidence-based and National Institute for Health and Care Excellence (NICE) guidelines on STIs as a marker of child sexual abuse
- Genital warts more likely to indicate sexual abuse than previously thought
- The increase use of social media to gain information regarding sexual health and as means of exploitation
- Change in drug use patterns with emerging new resistance in gonorrhoea

Introduction

The legal definition of a child in the UK varies depending on jurisdiction. In England, a child is defined in law as someone up to the age of 18 years; in Scotland, someone up to 16 years unless subject to a supervision requirement. Physiologically, puberty marks the transition from child to adult, but the time of completion of puberty (Tanner stage 5) can vary significantly. In this article 'child' usually refers to the pre-pubertal stage.

Sexually transmitted infections (STIs) and their transmission routes, pathogenesis, presentation and treatment vary according to the age of the child and their hormonal status. The diagnosis of an STI in children has many more implications than in adults, as the issue of infection in parent(s) and siblings, and the possibility of sexual abuse need to be considered. The modes of transmission of STIs are shown in Tables 1 and 2. The incidence of pelvic inflammatory disease (PID) is relatively low in pre-pubertal girls, then rises in adolescence, because the immature genital tract is more susceptible than the mature tract to PID. Herpes simplex virus (HSV) acquired perinatally is a life-threatening infection with long-term sequelae, but in an older child is usually a self-limiting illness. The pathogenesis of syphilis varies markedly according to when the infection was acquired.

Diagnosis, investigation and management[1]

STIs in children and young people may be completely asymptomatic. Testing for STIs should be considered for all sexually active teenagers. Testing should always be considered where penetrative CSA is suspected/has occurred or when symptoms or signs could have been caused by an STI.

Pre-pubertal girls should be examined supine in the frog-legged position with hips flexed and the soles of the feet touching (some may prefer knee–elbow prone position) and in the lateral position to examine the anus.[2] Assessment where child sexual abuse (CSA) is suspected should be undertaken by a specialist in child assessment and a colposcope used to identify and record any abnormalities.

Sites to be tested depend on the symptoms, and disclosures made by the child. However, child victims of abuse often give no history of penetration or may not disclose all sites. Therefore vulvovaginal (VV), rectal, pharyngeal and urine samples may all be needed as well as swabs from actual lesions. Adolescents should have tests according to local protocols for adults, although because they are often less tolerant of examination, self-taken VV swabs or urine testing (less sensitive in females than VV or endocervical swabs) should be considered. Tests performed should be the smallest number possible and as non-invasive as possible to limit distress caused to the child by examination. Test methodology and interpretation in the light of positive and negative predictive values require expert advice for pre-pubertal children. Recommended tests are shown in Table 3 (see also Laboratory diagnosis on pages 310–313 of this issue).

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Modes of transmission of STIs in children

In utero

HIV, syphilis, human papillomavirus, hepatitis B and C, herpes simplex

Perinatal

HIV, syphilis, human papillomavirus, hepatitis B and C, herpes simplex, gonorrhoea, chlamydia, trichomonas

Direct contact

- Non-sexual/auto-inoculation — human papillomavirus, herpes simplex
- Fomites — may be possible for some STIs but if so rare
- Sexual assault/consensual sex — all STIs

Table 1

If there might be medicolegal proceedings, a 'chain of evidence' should be used, so that a sample can be accounted for from the time it is taken until the test result is known.

Partner notification should be undertaken when an STI is diagnosed. As STIs may be a marker of CSA, practitioners should consider or suspect abuse according to recommendations in the National Institute for Health and Care Excellence (NICE) guidelines[3] and the Royal College of Paediatrics and Child Health (RCPCH) evidence-based guidelines.[2] Many diagnostic tests and treatments are unlicensed in children and young people.

Gonorrhoea

Neonates

Vertically acquired gonorrhoea can cause conjunctivitis at 2–5 days after birth. Disseminated infection with arthritis and neonatal sepsis is uncommon.

Children

Infection may occur in conjunctiva, oropharynx, urethra, vagina, endocervix and rectum. Infection of the vagina and urethra is usually symptomatic with discharge, causing vulvovaginitis in girls and urethritis in boys. Rectal infection can cause rectal pain and/or discharge. PID, perihepatitis and peritonitis may occur.

Adolescents

Symptoms and signs are the same as for adults but there is an increased risk of PID.

Factors affecting acquisition of STIs

Background prevalence of STI
Maternal infection/mode of delivery
Developmental stage
Type of abuse
Frequency of sexual activity and number of contacts
Trauma
Time of examination relative to abuse
Use of barrier contraception

Table 2

Child sexual abuse

The risk of gonorrhoea in sexually abused children is 0–4% (0–2% in UK studies). In children with gonorrhoea (non-conjunctival), sexual abuse was reported in 36–83% of 0–12 year olds, and 90–100% of 5–12 year olds had sexual contact.[2,4]

Treatment

Treatment varies according to development stage, age and weight.[1] For adolescents, the recommended treatment comprises single doses of ceftriaxone IM plus azithromycin orally.[1,5]

Chlamydia

Neonates

Vertically acquired *Chlamydia trachomatis* causes conjunctivitis at 5–14 days after birth. It can also affect the nasopharynx and cause pneumonia, which is usually self-limiting. Asymptomatic infection of the vagina and rectum occurs in up to 15% of infants of infected mothers, and infection may persist for up to 3 years.[4]

Children

Infection is usually asymptomatic irrespective of site of infection.

Adolescents

Symptoms and signs are the same as for adults but there is an increased risk of PID.

Child sexual abuse

Risk of chlamydia in sexually abused children aged 0–12 years is 3–17%. In children with a history of genital sexual abuse, chlamydia was reported in 75–94% of 0–12 year olds.[2,4]

Treatment

Children with chlamydia should be treated with oral erythromycin or possibly azithromycin. For adolescents, single-dose azithromycin to aid compliance is preferred. Doxycycline is a recommended alternative for children over 12 years of age.[1]

Syphilis

Congenital syphilis

Congenital syphilis is rare but likely to increase as a result of the increasing prevalence of syphilis in the general population.[6] The condition is referred to as 'early' if the child is under 2 years of age and 'late' if aged 2 years or over. It involves multiple organs but the child may appear normal at birth, with signs developing at 3–12 weeks. In late syphilis there is predominantly bone and CNS (chiefly auditory) involvement.

Investigations for STIs in sexually abused children

Culture for *Neisseria gonorrhoeae*
Nucleic acid amplification test (NAAT) for *Chlamydia trachomatis*/*Neisseria gonorrhoeae*
Vaginal culture/microscopy for *Trichomonas vaginalis*
Polymerase chain reaction (PCR) analysis of samples from lesion for herpes simplex (and *Treponema pallidum* in some cases)
Serology for HIV, syphilis, hepatitis B and C where indicated

Table 3