GONORRHOEA, CHLAMYDIA AND NON-GONOCOCCAL URETHRITIS (NGU)

This *Making it Count* briefing sheet provides an overview on gonorrhoea, chlamydia and non-gonococcal urethritis (NGU) for sexual health promoters working with gay men, bisexual men and other men that have sex with men (MSM). These sexually transmitted infections (STIs) are three of the most common affecting MSM in the UK. They are often grouped together because they have similar modes of transmission, symptoms and treatment.

WHAT ARE THEY?

In men, gonorrhoea and chlamydia can affect the urethra (the tube in the penis which urine comes out of), the rectum and the throat. NGU only affects the urethra.

- Gonorrhoea is caused by infection with the bacteria *Neisseria gonorrhoeae*.
- Chlamydia is caused by infection with the bacteria *Chlamydia trachomatis*.
- Non-gonococcal urethritis (NGU) describes inflammation of the urethra, for which the cause is unknown.

NGU is usually caused by an unidentified bacteria. In many cases if the necessary tests were done, this would turn out to be *Chlamydia trachomatis* or *Mycoplasma genitalium*. But other bacteria and viruses can also cause urethritis.

The British Association for Sexual Health and HIV (BASHH) recommend that the term non-gonococcal urethritis (NGU) is used, rather than non-specific urethritis (NSU). Although these terms are often used interchangeably, it is not correct to do so.

- NSU refers to urethritis that is not caused by either *Neisseria gonorrhoeae* or *Chlamydia trachomatis*.
- NGU refers to urethritis that is not caused by *Neisseria gonorrhoeae* (but might be caused by *Chlamydia trachomatis*).

A man who has NSU therefore also has NGU, but a man with NGU does not necessarily have NSU.

HOW COMMON ARE THEY?

These are some of the most common STIs in the UK, both for the general population and for MSM. In 2009 in the UK:

- 3,265 gay and bisexual men were diagnosed with gonorrhoea.
- 4,488 gay and bisexual men were diagnosed with chlamydia.
- 5,485 gay and bisexual men were diagnosed with NGU.

Among MSM, chlamydia diagnoses have been rising rapidly over the past decade and the numbers reported as having NGU have also increased. There has been a reduction in gonorrhoea cases in recent years. However, nearly a third of all gonorrhoea diagnoses in men occur in MSM, while approximately one in twelve men infected with chlamydia or NGU are MSM.

HOW ARE THEY PASSED ON?

Gonorrhoea and chlamydia are caused by bacteria which may be found in semen, in the urethra and in the rectum of an infected man. They are more infectious than some other STIs.

The bacteria can be easily passed from one person to another during sexual contact, including unprotected anal intercourse, oral sex, sharing sex toys, rimming, fingering and fisting. They can be passed on by a person with no symptoms of infection.

Using a condom for penetrative intercourse reduces the risk of getting or passing the bacteria onto somebody else (as well as using gloves for fisting with multiple partners in one session, cleaning sex toys before sharing, washing hands after mutual masturbation). Regular screening for STIs, especially for men who have many sexual partners, will also help reduce the spread of these infections.

The most usual cause of NGU is a bacteria or virus which is passed on during sex. Very rarely urethritis (inflammation of the urethra) can also be caused by excessive friction during masturbation or sex, inserting objects into the urethra, an allergic reaction to soap or detergent, or drinking too much alcohol.

MAKING IT COUNT

Making it Count is the strategic planning framework that guides HIV prevention with MSM men across the CHAPS partnership. It recognises that bacterial STIs make a contribution to HIV incidence among MSM in England. The framework asserts that promoting the diagnosis, treatment and management of all STIs should be a central part of our HIV prevention programmes. Therefore one of the aims of *Making it Count* is to increase STI screening, particularly among those who change sexual partner more frequently.

The number of sexual partners men have between STI screens influences the rate at which STIs and HIV are passed on. Reducing the average number of partners between STI screens could be achieved by increasing the frequency of screening, by reducing the rate of partner change, or both.

WHAT ARE THE SYMPTOMS?

Most of the symptoms of these three conditions are similar. However up to half of men with chlamydia or NGU do not notice any symptoms. When symptoms are noticeable, they will usually appear within a month of infection. More men with gonorrhoea notice that they have it and the symptoms tend to appear more quickly, often within a week of infection.

When the infection is in the urethra (penis), signs of infection include itching, tingling, burning or other pain at the site of infection, especially when going to the toilet. A discharge may be produced – this may be most noticeable in the morning or after not having urinated for several hours. It may be visible on underwear. The testicles may also hurt and swell. The person may feel that he needs to urinate more frequently than usual.

If the infection is rectal, it can be easy not to notice any symptoms. However men may notice a discharge of mucous or blood from the anus, pain in the anus, or pain when having anal intercourse.

In the throat, gonorrhoea (and less commonly, chlamydia) can cause a sore throat, but again it is typical for no symptoms to be noticed.

Rarely, gonorrhoea and chlamydia can infect the eye. This can cause pain, swelling, irritation and discharge (conjunctivitis).

Gonorrhoea and chlamydia infections that are left untreated for a long period can sometimes spread to other parts of the body and cause more serious complications. These can include fevers, infection in the testicles, reduced fertility, and arthritic-like pain and swelling.

HOW ARE THEY DIAGNOSED?

The methods for testing *Neisseria gonorrhoeae* and *Chlamydia trachomatis* are very similar and clinics usually test the same sample for both bacteria.

For infection of the urethra, a urine sample is taken. Alternatively, a swab may be taken. A swab looks a bit like a cotton bud, but is smaller and rounded. It sometimes has a small plastic loop on the end rather than a cotton tip. It is wiped over the parts of the body that could be affected. It takes a few seconds and may be uncomfortable, but should not be painful. It is best not to pass urine in the two hours before these tests, as urinating temporarily washes away the signs of infection that the tests are trying to detect.

For rectal or throat infections, swabs are taken from these parts of the body. During a routine sexual health check-up, the swabs taken will depend on the symptoms and sexual behaviour that the patient reports. If he does not mention rectal symptoms or receptive anal intercourse, a test for rectal infection might not be performed.

The standard tests performed on these samples use nucleic acid amplification tests (NAATs). Alternatively, infection can be diagnosed by growing (culturing) the bacteria from the swab sample. For either of these methods, results may take up to two weeks to be given.

Urine and urethral swab samples can also be examined under the microscope and some diagnoses can be made immediately by this method. It may be possible to identify *Neisseria gonorrhoeae* this way. Similarly, urethritis (inflammation) can be identified if a sample shows that there is an unusually high proportion of white blood cells.

When someone is diagnosed, their sexual partners who are at risk of infection and who can be identified should be contacted, tested and treated.

HOW ARE THEY TREATED?

These infections are treated with antibiotics. In many cases a single dose is sufficient, although sometimes a week-long course is required. For gonorrhoea, the antibiotic may be given by injection in the buttocks rather than tablets.

If a man has urethritis with no confirmed cause (ie. NGU), this may well be chlamydia, and he will usually be offered the same treatment as if chlamydia had been diagnosed.

So, for both chlamydia and NGU, the standard treatment is:

- Azithromycin tablet – single dose, OR
- Doxycycline tablet, twice a day for 7 days.

Alternative treatments are Ofloxacin or Erythromycin, which need to be taken for 7 days and 14 days respectively.

Recommended antibiotic treatments for gonorrhoea have changed frequently, as bacterial strains have developed resistance to existing treatments. In the late 1990s, resistance to drugs in the quinolone class (eg. Ciprofloxacin) led to them being abandoned as first-choice treatment, to be replaced by drugs in the cephalosporin class (eg. Cefixime, Ceftriaxone). Some strains of gonorrhoea which are resistant to these older drugs are still being diagnosed.

As a consequence men with diagnosed gonorrhoea will need further testing to see whether they have drug-resistant gonorrhoea. These tests are performed by growing (culturing) the bacteria from a swab sample. The choice of antibiotics will depend on the results given.

However the current standard treatment for gonorrhoea is:

- Ceftriaxone injection – single dose, OR
- Spectinomycin injection – single dose, OR
- Cefixime tablet – single dose.

A second course of antibiotics may be needed if symptoms do not go away or if the patient is found to have a resistant strain of gonorrhoea.

If people are taking a 7 or 14 day course, it is important that they take all their tablets to ensure that the treatment is effective. While the symptoms may take a few days to go away, their absence does not indicate that the infection has already been completely cleared from the body.

It is also important not to have unprotected anal or oral intercourse during this time to avoid passing the infection on to a partner, or the patient being re-infected themselves.

Patients might be asked to return seven days later for tests to confirm that they have been cured.

WHAT'S THE LINK WITH HIV?

Having any one of these sexually transmitted infections makes HIV transmission more likely when HIV exposure occurs. HIV infected men with an STI are more able to pass on HIV; men without HIV but with an STI are more vulnerable to picking up HIV.

In men with HIV, having an infection in the urethra pushes up viral load (the amount of HIV) in semen. High viral load is linked to increased likelihood that HIV is transmitted when exposure occurs.

In men without HIV, the immune system's response to these sexually transmitted infections facilitates subsequent HIV infection. CD4 receptor cells concentrate at the site of infection: these are the target cells for HIV infection, so increased presence of such cells increases the risk of acquiring HIV.

An American study found that gay and bisexual men who had repeated rectal infection with gonorrhoea or chlamydia were eight times more likely to acquire HIV than other men in the study, even after taking into account differences in their sexual behaviour. An Australian study has also found that men with rectal gonorrhoea were more likely to acquire HIV.

FIVE KEY POINTS

- Gonorrhoea, chlamydia and NGU have similar modes of transmission, symptoms and treatment.
- Non-gonococcal urethritis (NGU) is inflammation of the urethra whose cause is unidentified.
- Gonorrhoea, chlamydia and NGU are very easy to pass on during unprotected sex and are some of the most common STIs affecting MSM in the UK.
- Treatment for gonorrhoea, chlamydia and NGU is generally straightforward, although some strains of gonorrhoea are drug resistant.
- Having one of these infections makes men more susceptible to HIV infection, when HIV exposure occurs, and makes men with HIV more infectious.

FURTHER READING

British Association for Sexual Health and HIV (BASHH) publish treatment guidelines for each of these conditions. www.bashh.org/guidelines

FPA publish detailed information for the public on each condition. www.fpa.org.uk/helpandadvice/sexuallytransmittedinfectionsstis

Ward H, Rönn M (2010) Contribution of sexually transmitted infections to the sexual transmission of HIV. *Current Opinion in HIV & AIDS,* 5: 305-310.

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This briefing sheet is an update of a Sector Summary Report written by Richard Scholey and published by Terrence Higgins Trust in September 2004. Thanks to the following people for helpful comments on earlier drafts: Sarah Aston (The Eddystone Trust); Adam Bourne (Sigma Research); Peter Boyle (The Lesbian & Gay Foundation); Tom Doyle (Yorkshire Mesmac); David Hiles (Terrence Higgins Trust); Richard Scholey (Terrence Higgins Trust); and Patrick Stoakes (THT Brighton).

This briefing sheet was commissioned by Terrence Higgins Trust (THT) on behalf of CHAPS, a national HIV prevention partnership funded by the Department of Health for England. CHAPS is a partnership of community-based organisations carrying out HIV prevention and sexual health promotion with gay men, bisexual men and other MSM in England. Alongside THT it includes The Eddystone Trust (South West England), GMFA (London), Healthy Gay Life (Birmingham), The Lesbian & Gay Foundation (Manchester), The Metro Centre (London), TRADE (Leicester), and Yorkshire MESMAC.

Published: March 2011

ISSN 2045-4309