Screening should give informed and consenting patients a better prognosis, with acceptable harms and at reasonable cost

Screening for *Mycoplasma genitalium* infection?

The bacterium *Mycoplasma genitalium* is transmitted through sexual intercourse and can cause urethritis and cervicitis, conditions which may have mild or no symptoms. We do not know the natural course of the infection, but women with a demonstrated *M. genitalium* infection seem to have roughly double the risk of pelvic inflammatory disease, miscarriage, premature birth and infertility compared to non-infected women (1). Whether the infection also causes complications in men is uncertain. Nucleic acid amplification tests can detect the bacterium in urine samples or swabs from the cervix or urethra. Commercial laboratories combine testing for *M. genitalium* with testing for *Chlamydia trachomatis* and *Neisseria gonorrhoeae*. The infection can be cleared with antibiotics (2).

In this issue of the *Journal of the Norwegian Medical Association*, Liv Kjersti Paulsen and colleagues show that genetic material from *M. genitalium* was present in urine samples from 3.4 % of women and 3.9 % of men who had provided samples for *C. trachomatis* testing (3). The indication for testing was not stated, but it must be assumed that this was opportunistic screening in most cases. Everything should thus be in place to do with *M. genitalium* as we have done with *C. trachomatis* for more than quarter of a century – namely, screen young women and men whenever the opportunity arises. But is it really that simple?

Screening can be defined as «systematic testing of a presumed healthy population to identify individuals with risk factors for disease or early stages of disease, before the disease produces symptoms» (4). The intention is to prevent the disease from progressing to stages where treatment is more unpleasant or less effective, where symptoms are more severe or where there is permanent damage to health (5).

We do not know whether it is beneficial to have an asymptomatic *M. genitalium* cervicitis or urethritis discovered and treated now as opposed to later or never. This question could be addressed via a study in which patients are randomised to either be screened or not screened. The outcome could be the incidence of complications such as pelvic inflammatory disease or epididymitis in the two groups. Such a study could readily be conducted in Norway.

Any potential benefits of screening must be weighed against the costs and harms, for the individual patient and for society. In theory, there are several possible harms (6):

Overdiagnosis refers to the detection by screening of changes that would never have led to disease. Could it be that our highly sensitive tests for *M. genitalium* detect infections that are so low-grade that they are not contagious, will not become symptomatic and will not give rise to complications? A positive test in one partner in a relationship can have unintended consequences for that relationship. It is usually difficult to determine how long a person has been infected, so suspicions of infidelity may quickly arise. When many are screened, some will end up with false positive results as the specificity of the tests is never 100 %. A positive result can come as a shock for a person who has been screened, and this may in itself have adverse psychological effects. Screening may also have negative effects on society by consuming resources that might have been better used elsewhere.

Only when knowledge of the benefits, costs and harms of screening for *M. genitalium* infection is in place can we decide whether to begin screening – and, if so, how this screening should be organised and financed. Unfortunately, much suggests that screening is already being introduced. Several doctors and clinics offer testing, not only of patients with symptoms but also of asymptomatic individuals. My local laboratory routinely tests for *M. genitalium* in samples sent in for *C. trachomatis* testing (7).

In theory, screening with subsequent clearance of infection can help to reduce the risk of infection for partners and – ultimately – reduce the prevalence of the infection in the community. This possible additional benefit of screening should also be documented and included in the final calculation of benefits, costs and harms. In any case, an infection-fighting strategy should be adopted only after careful consideration and not simply introduced unsystematically.

Experience from the effort to combat genital chlamydia infections should give reason for caution. Extensive opportunistic screening from the 1980s onwards has not resulted in a lower infection prevalence today (8). Women who are screened reduce their risk of pelvic inflammatory disease, but whether there are benefits for men remains unknown (9). The effects of screening on rates of pelvic inflammatory disease and ectopic pregnancy in the population are highly uncertain (10).

In 2014 the Norwegian Directorate of Health proposed a national system for the introduction, modification and management of national screening programmes (4). The question of whether we should screen for *M. genitalium* infections underlines the need for management and prioritisation of screening in Norway.

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