Positive test results motivate GPs to continue screening in a chlamydia prevalence study

Veronique Verhoeven, Dirk Avonts, Roy Remmen, Hugo Van Puymbroeck, Paul Van Royen

SUMMARY

In this study, GPs predicted for each of their patients in a chlamydia prevalence study whether they would be infected or not. Prediction of infection did not correlate well with true infection risk. GPs who had infected patients at the beginning of the project included more patients afterwards than their colleagues who had only negative results.

A rigid screening protocol is necessary to preserve GPs from choosing wrong candidates for screening and subsequently getting demoralised because no infections are diagnosed.

Keywords*: screening; chlamydia trachomatis; general practice; feasibility*

Introduction

CHLAMYDIA trachomatis is a major cause of pelvic inflammatory disease, ectopic pregnancy and infertility. Opportunistic screening has been suggested as a valuable strategy for controlling chlamydial infections.[i] Most opportunities for screening occur in primary care.

However, GPs already have an impressive number of responsibilities and adding a new preventive measure to routine practice is not easily done. Building up a new automatism is complicated by factors such as lack of time, fluctuating motivation and scepticism about the usefulness of the intervention.

We studied how GPs in a pilot screening study, set up to determine prevalence and risk factors of chlamydial infection, formed an idea of the infection status of their patients, and how their expectations and the test outcomes influenced their further testing behaviour. Insights from this study can help in designing a feasible screening strategy.

Method

This study was part of a larger prevalence study in general practice in Antwerp, Belgium. Between February 2001 and June 2002, participating GPs offered opportunistic testing for chlamydia trachomatis to their sexually active female patients under 40, who attended for routine gynaecological care (mostly pill prescription or cervical cytology smear). Participants filled in a 47-item questionnaire and delivered a self-taken vaginal sample that was tested for the presence of chlamydial DNA by a ligase chain reaction (LCR) assay. Details of the procedure were described elsewhere.[2]

Twenty GPs provided a 'forecast' for each patient they included and tried to predict whether or not she would be infected. GPs were informed that chlamydia prevalence was 3–5% in the population.

Data were analysed using SPSS 10.0 for Windows. The mean scores of the different groups were compared using the Independent Samples T-test.

Results

Full data were obtained from 530 patients. Chlamydia prevalence was 4.5% (24/530). While 57 patients had been predicted to be positive for chlamydia, only seven of these (12.3%) were correctly classified as positive, while 70.8% of actual infections (17/24) were unexpected by the GPs.

Patients' characteristics most associated with a suspicion of infection were: urogenital complaints (79%), low education (56%), more than one sexual partner in the past 12 months (47%) and being of non-Belgian origin (30%). Of those presumed to be positive through having more than one partner, 93% also had urogenital complaints. In contrast to the physicians' expectations, low education and non-Belgian origin were not linked with infection in this sample.[2] Dysuria/frequent

Veronique Verhoeven, MD, principal researcher; Dirk Avonts, MD, PhD, associate professor of general practice; Roy Remmen, MD, PhD, associate professor of general practice; Hugo Van Puymbroeck, MD, general practitioner and researcher; Paul Van Royen, MD, PhD, professor of general practice, Department of General Practice, Antwerp University, Belgium.

Address for correspondence:

Veronique Verhoeven, Department of General Practice, Antwerp University, Universeitsplein 1, 2610 Wilrijk, Belgium. E-mail: veronique.verhoeven@ua.ac.be

Submitted: 6 January 2003; Editor's response: 20 March 2003; final acceptance: 3 June 2003.

©*British Journal of General Practice,* 2003, **53,** 640-641.

HOW THIS FITS IN

What do we know?

Opportunistic screening is considered to be a valuable strategy for the control of chlamydia trachomatis infections. Little is known about the conditions that make continuous screening feasible for health care providers.

What does this paper add?

GPs have difficulties predicting whether a patient is at risk. If they are not offered a rigid screening protocol, they might screen the wrong women and get demoralised when no positive results are obtained.

urination and postcoital bleeding were determinants of infection, but their infrequency made them of limited use as screening criteria. The best determinant was more than one partner in the past year, which was found in 2/3 infected women. The positive predictive value of this determinant was 11%.

We found that the presence or absence of positive test results influenced physicians' screening behaviour, especially if the test result differed from the GP's prediction (Table 1).

GPs who had a positive test result in at least one of their patients at the beginning of the study, offered significantly more tests afterwards than GPs for whom none of the first ten tests were positive. Physicians who got only negative test results abandoned screening after a while.

GPs who had no positive test results in the first ten tests but had *expected* (predicted) some, offered significantly fewer tests than all the others. An unexpected positive result had also an influence on the prediction of positives: GPs who had an unexpected positive result considered more patients to be at risk afterwards than physicians without this experience (5.40 patients predicted positive versus 1.70, p=0.05).

Discussion

This paper shows how GPs in a prevalence study formed an idea of their patients' infection status, and how test outcomes influenced further testing behaviour. Other factors, not considered here, will have influenced testing behaviour. They are pressure of time, communication skills and reimbursement — proportional to the number of patients included.

GPs often used irrelevant information to assess infection risk. Furthermore, positive test results seemed to encourage GPs to continue screening, and GPs who had only negative results at the start of the study stopped offering tests to their patients after a while. This is in line with widely recognised concepts in decision psychology: it is clear that the occurrence of a low-chance event (e.g. a positive chlamydia test) early in a series does not make recurrence more likely in the series, but clinicians tend to put inappropriate faith in data from small samples which are considered representative of larger populations.[3] If expectations of getting positive results are negated, GPs may be discouraged and lose interest in screening.

These problems could be partly solved by installing organised screening. However, earlier attempts to install organised screening programmes in Belgium (i.e. for cervical cancer) were inefficient because of political/organisational problems, with important differences between provinces in the target groups and screening intervals they opted for, the absence of quality control, and low participation. Furthermore, the impact of organised screening is limited by the fee-for-service payment system, which is not determined by respect for guidelines.[4]

Awareness of the desirability of screening for chlamydia trachomatis is rising among GPs and screening tests are becoming more widely available. Therefore, opportunistic screening will be performed more frequently. However, vague or unfocused messages will probably lead to bad screening practices and demoralised physicians. A rigid screening protocol should be offered to health care providers, so that they can rely on evidence-based rather than intuitive screening criteria. Furthermore, selective screening is preferable if valid screening criteria can be developed, and this would ideally result in a high prevalence in the screened population. Getting regularly positive results from screening tests will keep GPs motivated to continue their practices. Guidelines for screening exist in literature,[5] but validity in different populations has to be assessed.[6]

References

1. Department of Health. *Main Report of the CMO's expert advisory group on Chlamydia Trachomatis.* London, 1998. http://www.doh.gov.uk/pub/docs/doh/chlamyd.pdf
2. Verhoeven V, Avonts D, Meheus A, *et al*. Chlamydial infection: an accurate model for opportunistic screening in general practice. Accepted but not yet published by *Sexually Transmitted Infections*.
3. Featherstone HJ, Beltman BD, Irby DM. Distorted learning from unusual medical anecdotes. *Medical Education* 1984; **18:** 155-8.
4. Arbyn M, Van Oyen H. Cervical cancer screening in Belgium. *Eur J Cancer* 2000; **36**: 2191-7.
5. Grun L, Tassano-Smith J, Carder C, *et al.* Comparison of two methods of screening for genital chlamydial infection in women attending in general practice: cross sectional survey**.** *BMJ* 1997; **315:** 226-230.
6. Verhoeven V, Avonts D, Meheus A, *et al*. Performance of the recommendations of a British advisory group for screening for chlamydia in a sample of women in general practice. *J Med Screen* 2003; **10(1):** 14-5.

Table 1. Number of distributed tests in function of early screening experience.

GPs classified according to screening experience in first 10 distributed tests	N	Mean number of distributed tests (SE) in the study period	t-test value	Sig (2-tailed)
At least one positive result in first 10 tests.	8	49.75 (8.45)	3.54	.007
No positive result in first 10 tests.	12	18.25 (2.79)		
No positive result although a positive was expected.	10	16.50 (2.26)	3.62	.004
Others (at least one positive, or no positive but none expected).	10	45.20 (7.60)		