Problems of follow-up for abnormal cervical smears: discussion paper

R Ellman MFCM *Cancer Screening Evaluation Unit, Section of Epidemiology, Institute of Cancer Research, 15 Cotswold Road, Sutton, Surrey SM2 5NG*

Keywords: cervical cancer; screening

Paper read to Sections of Pathology and Epidemiology & Community Medicine, 11 April 1989

Screening without follow-up of the suspect cases is quackery not medicine. Yet it happens. The reason for haphazard follow-up has probably been vagueness about the purpose of screening and scepticism about its effectiveness.

The only purpose of screening which justifies its cost is that it can prevent the majority of deaths from cervical cancer and reduce morbidity but an alternative goal, that of providing a perfect guarantee for compliant women against invasive cervical cancer, sometimes seems to obscure the real one. The fee to GPs for screening may further have diverted attention and it has been suggested, half-jokingly, that better results would come if instead of this fee there was a jackpot to be won for every case discovered and treated.

Cervical cancer screening was introduced with little more than theoretical evidence of its value and UK statistics still show no clear evidence of an effect on cervical cancer mortality. Scepticism about the value of screening was perhaps therefore almost excusable and some doctors have probably been providing the service as no more than a placebo. But the situation is now altered: the evidence that well-organized screening has reduced mortality in Iceland, Finland, Sweden, parts of Denmark, Canada and Scotland is strong.

Equally clear is the conclusion of a New Zealand judicial inquiry[1] that failure to treat women with persistently abnormal smears constitutes culpable negligence. The inquiry concerned a study conducted by a sceptic who doubted the malignant potential of carcinoma in situ and observed women with biopsy-proven carcinoma in situ for over 20 years. Out of 131 women who had shown persistently positive smears following biopsy 22% developed invasive cancer and five of them died.

Size of the problem in the UK

Confidential review of the screening history of women who develop invasive cervical cancer reveals the relative importance of possible explanations for failure in local screening programmes. Two cancer registry based studies, one in Manchester[2] and one in South-West Thames[3], drew attention to the fact that non-follow-up of abnormal smears preceded invasive cancer in 14% and 13% of cases respectively, making this as important an explanation of failure as any technical shortcoming of the Pap test.

These were retrospective studies. Elwood[4] looked instead at the follow-up of over 1000 abnormal smears first detected in 1981 and found that only 59% had had adequate follow-up by the standards recommended at the time. He was unfortunately only able to trace 51 (12%) of those lost. The lapse in these cases had been short and none, fortunately, had developed invasive cancer or even cervical intraepithelial neoplasia (CIN) stage 3. Finding evidence about the risk of non-follow-up is necessarily tricky. Kinlen and Spriggs[5] were the first to try. Among 70 women whom they managed to trace from a sample of 131, after a lapse of at least two years, 13 (including five who died) had developed invasive cervical cancer. The method of selection of the lost cases however was unspecified. More recently Robertson[6] reported on a 1965-1984 series of women with mildly dyskaryotic smears. Four hundred and thirty four (24%) of the series were lost to follow-up and three of them (6.9 per thousand) developed invasive cancer, giving a crude relative risk, compared with those followed up of 2.3. It is among such mildly abnormal cases that non-follow-up is most common.

Managing follow-up

Successful cervical screening programmes have not been remarkable for the use of more advanced technology but for the attention given to management: to population coverage, to ensuring follow-up of abnormal smears and to good smear taking and reading.

Follow-up elsewhere will improve only if there is conviction that follow-up is necessary and if there is a clear and workable protocol which has been discussed between cytologists, gynaecologists, community physicians and GPs and has the backing of the Health Authority. Without such backing fear of litigation may lead to excessive investigation - investigation which the screener would not be willing to follow if she or a close relative were the patient.

The mechanics of assuring follow-up include checking that addresses are correct, the adoption of consistent terminology and the inclusion of advice on follow-up in cytology reports. A fail-safe procedure initiated in the cytology laboratory for ensuring that clinicians do not forget to repeat smears after a recommended delay is essential. None of these are measures which need add appreciably to the cost of screening. There will remain a few women who are elusive. Referral letters, however carefully worded, can cause panic. The effort required to find and persuade just one reluctant woman to comply may seem large unless it is remembered that without it the effort of screening some hundreds of healthy women is rendered futile.

Has the case for more intensive follow-up been proved?

Each programme has to find an acceptable balance between the small but very serious risk of invasive cancer and the disadvantages of over-treatment. The availability of alternatives to cone biopsy - alternatives which can be performed on outpatients and which result in quicker healing, less haemorrhage and sepsis and fewer obstetric problems - has shifted the balance towards readier intervention, but though physical hazards have been reduced, Posner & Vessey[7] and Campion *et al.*[8] have suggested that psychosocial

0141-0768/90/020094-02/$02.00/0

consequences of diagnosis and treatment for CIN are not trivial. If self-esteem and the ability of young women to enjoy sexual relationships can be permanently impaired the costs of ablative treatment should not be considered trivial.

The evidence that risk for those with slight smear abnormalities is higher than it used to be must be scrutinized. Undoubtedly younger women now have a higher prevalence of all stages of CIN, and, but for screening intervention, will continue through life to experience a higher incidence of invasive cervical cancer than the cohort who are now around the age of 50 but the belief that the disease in young women today is different may be an illusion. Silcocks and Moss[9] have demonstrated that, without postulating any biological change, a rising incidence of the disease and increased screening adequately explain the increased number of invasive cases now being discovered within a short period after screening. Screening also explains the increase in the proportion of types such as endocervical carcinoma which are difficult to detect by screening. Despite the impression of many clinicians that the disease in young women is more aggressive, epidemiological studies do not substantiate this. Russell[10] and Meanwell[11] looking at all cases registered with the Birmingham and Manchester cancer registries found survival was *better* in the young - most of the difference resulting from more favourable stage at diagnosis. Nor is there a greater risk of relapse among young women in whom spontaneous regression of dyskaryosis has occurred than among older women[6].

The rate of progression is difficult to measure. Sampling errors can explain many seemingly rapidly progressive cases and recent studies of consistency, both in reporting cytology[12] and histology[13], show that observer variability is great enough to explain the wide differences in progression rates reported.

Urgent need for research

It would be irresponsible to expand colposcopic services without more rigorous examination of the benefits and disadvantages. This requires controlled trials, preferably randomized, conducted in centres with high standards of smear-taking and smear-reading. 'Blind' review of cytological, histological and virological or other specimens is essential. True benefit, the prevention of invasive cancer, cannot be directly measured; even with the most conservative follow-up invasive cancer is far too infrequent to provide an outcome measure in a study of manageable size. An estimate of risk reduction must instead be derived from the incidence of CIN3. Large studies are needed even so and on the cost side the physical and psychosocial consequences of investigations and treatments for CIN as well as their cost to the Health Service must be compared.

Just as it is unethical to neglect the needs of patients so it is unethical to squander resources and unethical to entangle patients in needless investigations and treatments. The case for intensive follow-up for minor cytological abnormalities must be argued not by shroud-waving but by measuring marginal costs and marginal benefits.

The failures of the screening programme have been blamed on the absence of initial evaluation. The reorganized screening programme must not repeat this mistake by creating chaotic demand for colposcopy.

References

1 Paul C. The New Zealand cervical cancer study: could it happen again? *Br Med J* 1988;**297**:533-8

2 Chisholm DK, Haran D. Cases of invasive cervical cancer in the North West in spite of screening. *Br J Family Plannig* 1984;**10**:3-8

3 Ellman R, Chamberlain J. Improving the effectiveness of cervical cancer screening. *J R Coll Gen Pract* 1984;**34**:537-42

4 Elwood JM, Cotton RE, Johnson J, Jones GM, Curnow J, Beaver MW. Are patients with abnormal cervical smears adequately managed? *Br Med J* 1984;**289**:891-4

5 Kinlen LJ, Spriggs AI. Women with positive cervical smears but without surgical intervention. *Lancet* 1978;ii:465

6 Robertson JH, Woodend BE, Crozier EH, Hutchinson J. Risk of cervical cancer associated with mild dyskaryosis. *Br Med J* 1988;**297**:18-21

7 Posner T, Vessey M. *Prevention of cervical cancer. The patient's view*. London: King Edward's Hospital Fund for London, 1988

8 Campion MJ, Brown JR, McCance DJ, Atia W, Cuzick J, Singer A. Psychosexual trauma of an abnormal cervical smear. *Br J Obstet Gynaecol* 1988;**95**:175-81

9 Silcocks PBS, Moss SM, Rapidly progressive cervical cancer: is it a real problem? *Br J Obstet Gynaecol* 1988;**95**:1111-16

10 Russell JM, Blair V, Hunter RD. Cervical carcinoma: prognosis in younger patients. *Br Med J* 1987;**295**:300-3

11 Meanwell CA, Kelly KA, Wilson S, Roginski C, Woodman C, Griffiths R, Blackledge G. Young age as a prognostic factor in cervical cancer: analysis of population based data from 10022 cases. *Br Med J* 1988;**296**:386-91

12 Yobs AR, Plott AE, Hicklin MD, *et al.* Retrospective evaluation of gynecologic cytodiagnosis. II. Inter-laboratory reproducibility as shown in rescreening large consecutive samples of reported cases. *Acta Cytol* 1987; **31**:900-9

13 Ismail SM, Colclough AB, Dinnen JS, Eakins D, Evans DMD, Gradwell E, O'Sullivan JP, Summerell JM, Newcombe RG. Observer variation in histopathological diagnosis and grading of cervical intraepithelial neoplasia. *Br Med J* 1989;**298**:707-10

(Accepted 17 July 1989)