Audit of deaths from cervical cancer: Proposal for an essential component of the National Screening Programme

D N Slater, P C Milner, H Radley

Abstract

Aims—To ascertain the type and relative frequency of major factors associated with deaths from cervical cancer.

Methods—Deaths from cervical cancer in Rotherham district for the period 1989–1991 were subjected to multifactorial audit by reviewing laboratory, hospital, and general practitioner records; together with, when appropriate, re-screening of cytology smears. This period represented the three to five years after a computerised National Screening Programme (NSP) had been implemented with a five year recall interval.

Results—Thirty six deaths were identified. The average age of death was 59 years with 39% occurring in those over 65. Only 6% of cases presented as a result of a cervical smear, comprising 3% derived from the NSP and 3% by chance. Forty seven per cent of cases in which the patient had died had no record of a previous smear invitation; 22% of patients were under 65 years and 25% 65 or over. Those under 65 had presented before the appropriate age band had been called. A non-response to a cervical smear invitation was identified in 22%. In 25% of cases a true negative smear had been reported one to eight years previously (average 4-8 years). An inappropriate laboratory diagnosis was identified in 17% of cases. Fourteen per cent represented false negative smears and 8% comprised inadequate smears that had been reported as negative. Inappropriate clinical diagnosis or management was identified in 19% of cases. In 22% two or more contributory factors were identified in the same patient.

Conclusions—Areas highlighted by the audit warranting further attention included the targeting of women over 65 with no cytology record; those not responding to smear invitations; laboratory performance; clinical acumen; and the reasons for true negative cervical smears. Multifactorial audit of all deaths from cervical cancer should be advocated nationally to assess and improve the effectiveness of the NSP.

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Audit of factors associated with deaths from cervical cancer should be a vital part of assessing the effectiveness of the National Screening Programme (NSP). Furthermore, if the Health of the Nation target is to be met (20% reduction of invasive cervical cancer by the year 2000), it is likely that any major problems revealed by audit will require rectification. To date, information on factors contributing to cervical cancer is derived from a relatively small number of studies, each having tended to analyse one specific aspect. Although these have been extremely valuable, surprisingly little is known about the relative frequencies of the different factors in the population. There is currently no national requirement to audit cervical cancer deaths and little attention has been paid to the impact of the NSP on factors associated with death from cervical cancer. For these reasons, a multifactorial district audit of cervical cancer deaths for the period 1989—1991 was undertaken. This period represented the three to five years after a computerised NSP in Rotherham based on a five year recall interval had been introduced.

Methods

Details of deaths from cervical cancer in Rotherham District for the period 1989–1991 were obtained from the Office of Population Censuses and Surveys. A multifactorial audit was achieved by reviewing laboratory, general practitioner, and hospital records, together with, when appropriate, re-screening of cytology smears. Factors associated with deaths from cervical cancer were classified under the headings shown in the table.

Results

Thirty eight cases of registered death from cervical cancer were identified; audit revealed

| Factors associated with death from cervical cancer (36 cases—1989/91) |
|---------------------------|-----------------|
| Number (%)                |                 |
| Single factors:           |                 |
| No previous cytology record | 17 (47)         |
| Under 65 years (pre-call) | 8 (22)          |
| No response to invitation | 9 (25)          |
| True negative smear       | 9 (25)          |
| Inappropriate laboratory report | 6 (17) |
| Undergraded               | 1 (3)           |
| False negative (total)    | 5 (14)          |
| Inappropriate inadequate  | 3 (8)           |
| Inappropriate negative    | 2 (6)           |
| Inappropriate clinical management | 7 (19) |
| Problems in follow-up safe | 0 (0)          |
| Two or more factors operative | 8 (22)        |
inappropriate certification in two. The average age of death was 59 years, with 39% of deaths occurring in those aged over 65. The mode of presentation was symptomatic in 94% and as a result of a cervical smear in 6%; the latter comprised 3% NSP smears and 3% opportunistic smears. The average period between presentation and death was 15 months. Forty seven per cent of cases in which death had occurred had no record of a previous cervical smear invitation; 22% of patients were under 65 years and 25% 65 years and over. All those under 65 had presented before the appropriate age band had been called. A non-response to a cervical smear invitation was identified in 22%. In no case, however, was the explanation for this formally recorded or mention made of further action.

All episodes of non-response were to opportunistic invitations. One third of non-responders declined smears on two or three occasions. Nearly two thirds of patients had undergone at least one previous cervical smear. Twenty five per cent of deaths were associated with a true negative laboratory smear one to eight years previously (average 4·8). An inappropriate laboratory cytological diagnosis was identified in 17% of cases; 14% represented false negative smears. The most frequent cause for the latter (8%) was reporting an inadequate smear as negative. Inappropriate clinical diagnosis or management could be identified in the medical history in 19% of deaths; 11% were associated with general practitioner consultations and 8% with hospital consultations. The most common problems included failure to take a smear despite strong clinical indications (88%) and failure to relate clinical symptoms (abdominal pains, anaemia, and urinary tract problems) to the cervix (8%). In 22% two or more contributory factors were identified in the same patient. No case involved inappropriate follow up of a smear that had been reported as abnormal.

Discussion

This audit has shown that in Rotherham District, between 1989 and 1991, most cases of fatal cervical cancer presented symptomatically. The paucity of cytological presentations in this period could be interpreted as attributable to the NSP as having identified and precipitated the treatment of cases of cervical neoplasia at an earlier stage. However, this view must remain speculative on the basis of information available from this study. Contributory factors relating to death fell into easily definable groups. These included women under and over 65 with no cytology record, true negative smears, non-response to smear invitations, laboratory errors and inappropriate clinical diagnosis and management. All these groups had a broadly similar frequency of between 17 and 25%. The study also made an interesting observation that 22% of patients had contributory factors belonging to at least two groups.

With the overall death rate from cervical cancer falling, it is easy to become complacent with regard to the apparent success of cervical screening. Our results suggest, however, that to further increase the effectiveness of the NSP, all deaths from cervical cancer require multifactorial audit. Only then can the nature and extent of outstanding problems be monitored and agreement sought on how best to deal with them. In Rotherham the computerised call of women between 20 and 65 was only completed in 1992. Accordingly, in the future it is to be hoped that deaths in women under 65 in whom there is no cytology record will substantially diminish. There seems to be a strong case for targeting women over 65 with no cytology record, and the counselling of non-responders seems essential in an attempt to encourage attendance for a smear.

Factors such as the new national cytological definition of an inadequate smear and the monitoring of laboratory performance by external quality assurance are likely to minimise laboratory errors. Our recommendation to audit all deaths from cervical cancer would also be expected to result in improved clinical acumen. The percentage of interval cancers associated with a previous negative smear is of particular concern and lends support to the choice of a three rather than five year recall interval. But the contribution of poor smear-taking technique to true cytologically negative smears remains uncertain. Interestingly no cases were identified where reported abnormal smears had been followed up inappropriately, and this may reflect improvements in "fail-safe" mechanisms.

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