Editorial

Breast screening in Britain

Randomised controlled trials of mammographic screening have shown a significant decrease in mortality from breast cancer in association with screening.[1-5] The results of these trials leave little doubt that the disease is a progressive one,[6,7] in which the natural history can be arrested by early detection, and that the point at which it is arrested is vital in terms of outcome: the earlier the detection, the lower the mortality.

The significance of this achievement in terms of public health was recognised soon after the publication of the Swedish Two County and other trials, as mammographic screening programmes were introduced in country after country. The United Kingdom was one of the first to introduce a national programme.[8]

While the potential for reducing mortality by screening is clear from the trials, the heterogeneous nature of the disease renders the task a difficult and complex one. There are many types of breast tumour, with varying growth rates, malignant potential, and clinical, mammographic, and histological appearances. The task for screening is the early detection of those tumours which are most likely to be fatal. Variation in outcome in different studies reflects varying success of the programmes in achieving this early detection.

Two papers appear in this issue, both aimed at early assessment of the effectiveness of breast screening in the United Kingdom.

The paper of Moss *et al* examines a few basic indirect markers: breast cancer detection rates at prevalence and incidence screens, detection rates of cancers of diameter 1 cm or less, and recall and biopsy rates. From these, there is some good news, notably the reduction in open biopsy rates due to the use of fine needle aspiration biopsy, the increase in the proportion of screening centres meeting detection targets, and the maintenance of attendance rates. There are some less encouraging results, but the principal drawback is the difficulty in evaluating the likely success of the United Kingdom programme at all from such limited data. The authors write: "Unfortunately in the United Kingdom as a whole, data on tumour size or stage are not complete enough, either historically or at present, to enable any analysis of such trials to be undertaken".

The most direct predictor of future breast cancer mortality is the incidence rate of advance tumours.[9] Moss *et al* are unable to provide this, but hope to do so in the future. In the absence of such data, the incidence and attributes of interval cancers could give a good indication of future outcome. These are not available either, but again, the authors anticipate that they will be provided later. This begs the question: what concrete efforts are being made to ensure that such data will be available in the future?

Even on the indirect evidence available, there is some cause for concern. Many screening centres are still falling short of their detection targets for all tumours and for tumours of 1 cm or less in size.

Other concerns are raised from results reported from East Anglia with commendable frankness in this issue. Interval cancer rates in East Anglia are higher than expected. Other regions in the United Kingdom have reported similar results.[10] We can read a warning signal in this paper by Day *et al*: "In East Anglia, as elsewhere in the United Kingdom, interval cancer rates are nearly double those obtained in Sweden .... Thus we cannot expect to attain the Health of the Nation target of a 25% mortality reduction by the year of 2000". A rereading experiment on mammograms from the East Anglia programme found that up to 75% of interval cancers could have given rise to recall for assessment on the basis of the original screening mammograms. This suggests room for improvement of the sensitivity of the programmes.

The staff charged with the responsibility of breast screening in the United Kingdom face a difficult task with at best limited resources. When the British programme was initiated, many of the recommendations were said to be based on the results of the Swedish Two County trial. It is perhaps unfortunate that the interpretation of these results varied markedly between Sweden and the United Kingdom. In Sweden, the recommendations were for two yearly screening with two view mammography and double reading by radiologists who have undergone intensive specialist training in both screening and diagnostic mammography. In the United Kingdom, the interval is three years, longer than any interval in the randomised trials, most centres use single view mammography, and it seems that many of the British screening centres started from an experience and quality baseline below that in the trials.

Screening quality can be expected to improve with experience, but it is worth considering a more active response to perceived shortcomings, particularly with respect to sensitivity. This might include more resources for training and exchange of experience, particularly at international level. Also, a reduced interval, two view mammography and multiple reading would enable the programme to detect more tumours at an earlier stage.

The chief concern at this moment, however, is that data for the full evaluation of the United Kingdom programme are not available. This is unsatisfactory. The East Anglian results give an early warning about sensitivity and provide an example of the openness which is required to identify problems and consider possible solutions.

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