Mammography screening should be discontinued

The promising results of 30-year-old randomised studies of the efficacy of mammography screening cannot be confirmed by actual breast cancer mortality figures after decades of screening in several Western populations.

When the publicly organised mammography screening programme was piloted in Norway in the 1990s, the stated aim was to reduce breast cancer mortality rates by 30 % (1). This estimate was considered realistic following analysis of the first round of screening in the four pilot counties of Oslo, Hordaland, Akershus and Rogaland in 1996–97 (2). The optimism was tangible. The ten-year follow-up of a Swedish randomised study actually suggested a nearly 50 % decrease in breast cancer mortality (3), and there was practically popular demand for the programme to be expanded to cover the whole country.

In modern medicine, knowledge is normally built through basic science, and clinical and epidemiological studies, which applies likewise to evaluating the usefulness of mammography screening. The randomised studies from Sweden, Canada and the USA that were initiated some 30 years ago, are still used as arguments for the benefits of mammography screening. The ensuing decades have also seen a number of analyses made of ongoing mammography screening programmes in several countries. Trends have been observed, computer modelling employed, invitees analysed against non-invitees, attendees against non-attendees, and so on. The results of these studies have been contradictory, to put it mildly. As recently as May 2013, the Cancer Registry of Norway published studies claiming a halving of breast cancer mortality rates as a result of screening (4).

The only systematic review of the efficacy of mammography screening from the Cochrane Collaboration (5) reached the clear conclusion that mammography screening has not resulted in statistically significantly lower breast cancer mortality rates (based on analyses of studies with adequate randomisation), cancer mortality or overall mortality. At the same time, overdiagnosis of invasive breast cancer was estimated at 30 %. In a Canadian randomised study of women aged 40–59, there was on average a 2 mm difference in diameter in the cancer tumours detected by screening compared with those detected by clinical examination. All the participants underwent a clinical breast examination prior to randomisation. The women in the age group 40–49 were randomised on an individual basis to either four subsequent annual mammography screenings combined with clinical examination or usual care from their primary care physician. The women in the 50–59 age group were randomised on an individual basis to either four subsequent annual mammography screenings combined with clinical examination or annual clinical breast examinations at the screening facility. The participants in this study have now been followed for 25 years, and the results have recently been published (6). No statistically significant differences in breast cancer mortality were found between the groups, and overall mortality was also virtually identical, with a narrow confidence interval.

The answer has been found

The conflicts between «supporters» and «opponents» of mammography screening have been emotional, and the level of conflict has been high (7). The time has come to calm the passions on both sides. We must remember that both clinical and epidemiological studies, as well as analyses of existing screening programmes, are studies of a sample that only provide an estimate of what is happening at the population level. The uncertainty in these estimates is quantified with the aid of confidence intervals. The reality – and thus the answer to the question we are seeking – lies, however, in what is actually happening in the population. All Western countries have sound mortality statistics and can therefore provide answers over time as to the actual facts of breast cancer mortality.

These answers are available from a number of countries. Breast cancer mortality data from Norway, Sweden, Northern Ireland, the Republic of Ireland, the Netherlands and Belgium have been compared (8). Publicly organised mammography screening was introduced in these countries at different times. There is no need for statistical analyses to be able to see what the figures show: the introduction of a systematic mammography screening programme has had little or no influence on breast cancer mortality. That is also the case in the USA (9). Is this bad news? To that one could answer both yes and no. The good news is that the introduction of mammography screening does not appear to have led to an increase in mortality. The bad news is that far too many women have been subjected to unnecessary, mutilating surgical interventions as well as unpleasant cytostatic and radiation therapy because of overdiagnosis.

I believe that it is now high time for the medical profession to lay prestige aside and to acknowledge that there is no longer any scientific justification for mammography screening. The attention dedicated to the breast cancer problem should, however, be maintained and breast-cancer diagnostic centres should be preserved. We will thereby be able to ensure that the lowest possible number of women have to deal with the traumatic message that they have breast cancer, offer them the best available therapy, and also spare many other women the mental and physical trauma of an unnecessary breast cancer diagnosis.

Some countries are already pioneers in this respect. When the Swiss Medical Board not only recommend discontinuing existing mammography screening programmes but also advise against initiating new programmes (10, 11), there is every reason to listen carefully.

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