Breast Cancer Screening

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“You can observe a lot just by watching”

Yogi Berra

Mortality from breast cancer has declined worldwide in recent decades led to the introduction of screening programs and the improvement of various treatments.

Several studies have shown that screening has led to a decrease of breast-cancer mortality (1,2). For women with breast cancer, early detection also results in a better quality of life, because of less extensive surgical treatments. In the UK, women with cancer detected at screening have a total mastectomy rate of 27% compared with 53% in patients with a symptomatic cancer (3). However, we see regularly in literature a kind of anti-screening campaign driven by various groups and scientific journals such as the Nordic Cochrane Center and USPSTF. The British Medical Journal is a forum where groups against breast cancer screening usually publish their arguments.

The Nordic Cochrane Center Group in its public educational brochure notes that today seems unreasonable attend or participate in the screening (4). Besides, in November 2012 in the New England Journal of Medicine, Bleyer and Welch published an article: Effect of Three Decades of Screening Mammography on Breast Cancer Incidence, which concluded that breast cancer screening, despite a higher number of cancers detected early, has only marginally reduced the rate of women presenting with advanced tumors. This suggests that there is a significant overdiagnosis which would represent about one third of newly diagnosed cancers and that the investigation would have, in the best scenario, only a small beneficial effect on mortality from breast cancer (5).

This trend of thought has attracted a number of comments and reviews about this issue, among which stands out the review in the UK conducted by an independent panel also published in The Lancet in November 2012, under the title: The Benefits and Harms of Breast Cancer Screening: An Independent Review and one of its conclusions was that screening reduces mortality in breast cancer, but it happens with some degree of over-diagnosis, estimated between 11% and 19% (6).

Reviewing the controversy related to screening programs in breast cancer, the crux of the matter lies in evaluating or determining the degree of benefit, in terms of reducing mortality and how important is the damage in terms of over-diagnosis, understanding the latter as the screening detected cancers that otherwise would never have become clinically apparent in the lives of patients.
The screening programs are notoriously difficult to measure and subject to errors, with two key features: the over-diagnosis and other diagnostic underestimation, which are closely related.

We want a test for cancer which operates with perfect sensitivity and specificity, but screening technologies are not perfect, in fact, the sensitivity of mammography reaches about 80% overall.

Berry, figuratively, notes that the research is a lottery in which any gain is shared by a minority of women and a lot of them do not experience benefits, with the addition that they pay for the time involved and the risks associated with research.

Smith notes that the screening could be considered a sort of "insurance" where there are costs for protection against adverse events that have a low probability of occurrence, but that could be catastrophic if they occur without this coverage. (7)

A point worthy of being featured in this controversy is regarding the fact that the data, on which is based many considerations of the research, is very old. The New York Hip began testing in 1963 and most recently in 1991 the UK Age Trial; coupled with this, we should take into consideration both technological advances in diagnostic methods as most treatments for breast cancer.

In another vein, we cannot continue considering age as the only indication factor to consider a screening mammography, it is likely that genomics will help us in the future for a better stratification for selection, or indication, of the procedure in our women.

With respect to overdiagnosis, as a negative event in breast cancer screening, it should be noted that currently there is no method or technology that allows us to pinpoint if the detected cancer will have some impact in the life of that patient.

The "size" matters, surgeons unconsciously assume that small is good and big is bad, but keep in mind that the clinical behavior of the tumor growth is not a result of quantitative but qualitative growth, in other words, tumor biology does not depend only on size.

The medical world is approaching a period of chaos, and has coined by Eric Topol, a Creative Destruction of Medicine, understanding the latter concept as the transformations that accompany radical innovations. (8)

Our time demands a superior screening technology to currently available and this is a short-term commitment to be complemented and coupled with a better understanding of the disease through genomics; however with the current available methods in the era of Personalized Medicine, the applicability criteria of a screening test must be viewed within the context of individual who does not necessarily have to be those of a large population, so denying the use of screening mammography may generate more confusion and damage than its current use.

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References


3) Lawrence G, Lagord C. http://www.ncin.org.uk/view


