



Cochrane
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Breast Cancer

AWARENESS MONTH

What does the evidence say about
some common breast cancer
preventative measures and patient
care?

Evidence Synthesis **Breast Cancer Preventive measures and Patient Care**

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Breast Cancer Preventive measures and Patient Care

This review found that:

- there is no proof that green tea reduces cancer risk. High-dose green tea extract supplements may cause negative effects
- training health workers from LMICs in Clinical Breast Examination for early detection of breast cancer is crucial and can have significant benefits
- skin-sparing mastectomy may not be different from conventional mastectomy for the risk of cancer recurring in the breast area only (local recurrence), chance of dying of breast cancer (overall survival) or risk of complications after surgery. This means that patients can opt for this option without compromising their chances of a successful outcome.

1. Training health workers in breast examination for early detection of breast cancer in low- and middle-income countries

• What is the issue?

Limited screening services and inadequate health systems in low- and middle-income countries (LMICs) leads to late diagnosis of breast cancer among women living in LMICs. Advanced screening for breast cancer (using mammography) is mostly unavailable in many health facilities and, if available, is too expensive for most women. This Cochrane Review examines whether training health workers based in LMICs in clinical breast examination (CBE) would have any effect on early detection of breast cancer in these settings.

• Why does it matter?

Higher number of women die of breast cancer in LMICs compared to high-income countries (HIC) despite the lower occurrence rate of breast cancer in HICs compared to LMICs. CBE is an inexpensive early detection technique for breast cancer and training health workers from LMICs to conduct CBE has the potential to improve early detection of breast cancers.

• We asked?

Whether training health workers in CBE compared to no training has any effect on improving the detection of breast cancer at an early stage of the disease. We also assessed whether training of health workers in CBE

has any effect on the accuracy in detecting breast cancer, impact of CBE on deaths due to breast cancer, and knowledge and uptake of CBE amongst women. We included studies published by 17 July 2021.

We found four studies that answered our research question. The CBE training was provided to health workers, nurses, midwives, and community health workers working in LMICs. A total population of 947,190 women were screened for breast cancer. Of the total population screened, 593 breast cancers were diagnosed, with more cancers diagnosed at an early stage by trained health workers than by health workers who were not trained. The results from these studies suggest that training health workers in CBE may increase breast cancer diagnosis at an early stage, but the existing evidence is of low quality. More research is needed to assess its impact on other outcomes, including how accurately CBE is performed, knowledge about CBE, uptake of CBE, and if CBE has any impact on deaths due to breast cancer.

This means that there is a potential to detect breast cancer at an early stage if health workers in LMICs are trained to perform CBE; however high-quality studies are needed to answer this research question.

Author's Conclusion

Implications for practice

The findings of our Cochrane Review suggest there may be some benefit of training health workers from LMICs in CBE on early detection of breast cancer. However, the certainty of the evidence is very low regarding mortality, accuracy of health working performed CBE, and completion of follow-up.

Implications for research

There is a need for rigorous, good-quality studies in LMICs settings to ascertain the impact of this low-cost intervention on early detection of breast cancer in women living in LMICs. This may involve standardising training modules for training health workers in CBE, and utilising various cadres of health workers in LMICs to evaluate what works well in different settings. Furthermore, monitoring of the performance and quality of CBE by health workers is also important to ensure adequate screening. Future studies should focus on monitoring and reporting participants' compliance and follow-up at each stage of screening, as low rates of compliance and high loss to follow-up in these large scale screening programmes can compromise programme effectiveness. Moreover, efforts may be needed to ensure compliance and follow-up to ascertain the efficacy of the intervention.

Citation : Sayed S, Ngugi AK, Nwosu N, Mutebi MC, Ochieng P, Mwenda AS, Salam RA. Training health workers in clinical breast examination for early detection of breast cancer in low- and middle-income countries. Cochrane Database of Systematic Reviews 2023, Issue 4. Art. No.: CD012515. DOI: 10.1002/14651858.CD012515.pub2.

2. Green tea for the prevention of cancer

Background

There is a high consumption worldwide of green tea (*Camellia sinensis*), that contains polyphenols which have a powerful antioxidant activity that can prevent the formation of free radicals that may cause damage and cell death. Therefore, it has been suggested that green tea might reduce cancer risk, a theory that has been tested through a number of studies on human populations,

which examined the link between green tea consumption and cancer.

The aim of the review

We assessed the association between green tea consumption and the risk of developing cancer in epidemiologic studies.

Main findings

In this review we included 142 studies with

more than 1.1 million participants looking for an association between green tea consumption and cancers of the digestive tract and the female reproductive system, breast, prostate, kidney and urinary tract, nasopharynx, lung, blood, skin, thyroid and brain. The majority of the studies were of medium to high quality in terms of how they were conducted. Overall, the evidence from the studies showed that the consumption of green tea to reduce the risk of cancer was inconsistent.

Some studies suggested a beneficial effect on cancer risk, while others indicated no effect, and even suggested a slightly increased cancer risk. In particular, results from experimental studies suggested that green tea extract supplementation yielded a decreased risk for prostate cancer, but increased risk for gynaecological cancers. For non-melanoma

skin cancer no difference in cancer cases emerged. Green tea supplementation seemed to slightly improve quality of life compared with placebo, although it was associated with some adverse effects including gastrointestinal disorders, higher levels of liver enzymes, and, more rarely, insomnia, raised blood pressure and skin reactions.

In nonexperimental studies, comparing people consuming the highest amount of green tea to those in the lowest category of consumption, we found an indication of a lower occurrence of new cases of overall types of cancer, while no difference emerged for lethal cases. However, results according to the type of cancer and study design were inconsistent.

What are the conclusions?

A beneficial effect of green tea consumption on cancer prevention remains unproven so far. Caution is advised regarding supplementation with high-dose green tea extracts due to the possible adverse effects.

Citation: Filippini T, Malavolti M, Borrelli F, Izzo AA, Fairweather-Tait SJ, Horneber M, Vinceti M. Green tea (*Camellia sinensis*) for the prevention of cancer. *Cochrane Database of Systematic Reviews* 2020, Issue 3. Art. No.: CD005004. DOI: 10.1002/14651858.CD005004.pub3. <https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD005004.pub3/full/fr#CD005004-abs-0002>

3. Risk-reducing mastectomy for the prevention of primary breast cancer

Women should be aware of their true risk of developing breast cancer and the limitations of current evidence when considering risk-reducing mastectomy

Review question

We reviewed the evidence on whether risk-reducing mastectomy (RRM) reduces death rates from any cause in women who have never had breast cancer and in women who have a history of breast cancer in one breast. Also, we reviewed the effect of RRM on other endpoints, including breast cancer incidence, breast cancer mortality, disease-free survival, physical morbidity, and psychosocial outcomes.

Background

Recent progress in understanding the genetic basis of breast cancer and widely publicized reports of celebrities undergoing RRM have increased interest in it as a method of preventing breast cancer.

Study characteristics

Sixty-one studies presented data on 15,077 women with a wide range of risk factors for developing breast cancer, who underwent RRM. Risk-reducing mastectomy could include either surgically removing both breasts to prevent breast cancer (bilateral risk-reducing mastectomy or BRRM), or removing the disease-free breast in women who have had breast cancer in one breast to reduce the incidence of breast cancer in the other breast (contralateral risk-reducing mastectomy or CRRM). The evidence is current to July 2016.

Key results

The BRRM studies reported that it reduced the incidence of breast cancer or the number of deaths or both, but many of the studies have methodological limitations. After BRRM, most women are satisfied with their decision, but reported less satisfaction with cosmetic results, body image, and sexual feelings. One of the complications of RRM was the need for additional unanticipated surgeries, particularly in women undergoing reconstruction after RRM. However, most women also experienced reduced worry of developing and dying from breast cancer along with diminished satisfaction with body image and sexual feelings

In women who have had cancer in one breast, removing the other breast (CRRM) may reduce the incidence of cancer in that other breast, but there is insufficient evidence that this improves survival because of the continuing risk of recurrence or metastases from the original cancer.

While published observational studies demonstrated that BRRM was effective in reducing both the incidence of, and death from, breast cancer, more rigorous prospective studies are suggested. BRRM should be considered only among those at high risk of disease, for example, carriers of

mutations in the breast cancer genes, BRCA1 and BRCA2. CRRM was shown to reduce the incidence of contralateral breast cancer (CBC), but there is insufficient evidence that CRRM improves survival, and studies that control for multiple variables that can affect results are recommended. It is possible that selection bias in terms of healthier, younger women being recommended for or choosing CRRM produces better overall survival numbers for CRRM.

Quality of evidence

Just over half of the studies were found to have a low risk of selection bias, that is, studies adjusting for systematic differences in prognosis or treatment responsiveness between the groups, and similarly, 60% had a

low risk of detection bias, that is, studies considered systematic differences in the ways the outcomes were measured and detected. The primary cause for both selection bias and detection bias was not controlling for all major confounding factors, e.g., risk factors or having bilateral risk-reducing salpingo-oophorectomy (BRRSO - surgery to remove fallopian tubes and ovaries) in the subject and control groups. Performance bias (validation of the risk-reducing mastectomy) was not problematic, as most studies were based on surgical reports; three relied on self-reports and eight were unclear because of multiple sources of data and/or broad timeframe. Attrition bias was at high risk or unclear in approximately 13% of the studies. The mean or median follow-up period reported was from 1 - 22 years.

Conclusions

Given the number of women who may be over-treated with BRRM/CRRM, it is critical that women and clinicians understand the true risk for each individual woman before considering surgery. Additionally, thought should be given to other options to reduce breast cancer risk, such as BRRSO and chemoprevention, when considering RRM.

Citation: Carbine NE, Lostumbo L, Wallace J, Ko H. Risk-reducing mastectomy for the prevention of primary breast cancer. Cochrane Database of Systematic Reviews 2018, Issue 4. Art. No.: CD002748. DOI: 10.1002/14651858.CD002748.pub4. Accessed 24 October 2023.

4. Is skin-sparing mastectomy an effective and safe surgical procedure for the treatment of breast cancer?

What is the aim of this review?

We reviewed the evidence about the surgery technique called skin-sparing mastectomy (SSM) (that is, removing the breast tissue including the breast and areola (skin surrounding the nipple) but preserving all the

skin that overlies the breast) compared to conventional mastectomy (that is, removing the skin that overlies the breast including nipple and areola).

Key messages

We found that SSM may not be different from conventional mastectomy for the risk of cancer recurring in the breast area only (local recurrence), chance of dying of breast cancer (overall survival) or risk of complications after surgery. Complications after surgery which were assessed included breast reconstruction loss (where the breast reconstruction flap or implant needs to be surgically removed due to complications), skin necrosis, local infection, hemorrhage (bleeding), quality of life, and cosmetic results. The results of this review are based on 14 studies and most of these with likely biased due to flaws in their design.

What is skin-sparing mastectomy?

Conventional mastectomy for breast cancer is a surgical procedure consisting of removing the entire breast tissue, the skin that overlies the breast, and the nipple-areola complex. The chance of cancer returning to the chest wall (site of mastectomy) after this type of surgery is about 2.3% after 20 years. Trying to improve cosmetic results has led to the use of skin-sparing mastectomy (SSM) as an alternative to conventional mastectomy. Preserving as much of the breast skin as possible leaves minimal breast tissue and provides higher psychological satisfaction and the perception of less injury. SSM has been used for the treatment of breast cancer for the last two decades.

What did we want to find out?

We wanted to find out if SSM is as effective to treat breast cancer as conventional mastectomy and assess whether the surgical complication rates differed.

What did we do?

We searched for studies that compared SSM with other types of mastectomies for the

treatment of breast cancer. We compared and summarized the results of the studies and rated our confidence in the evidence based on factors such as study methods and sizes.

What did we find?

We found 14 cohort studies (longitudinal studies that follow people over time) involving 12,283 surgeries where 3183 people underwent an SSM and 9100 underwent a conventional mastectomy.

People who had an SSM or conventional mastectomy may have similar:

- chance of cancer returning after surgery (1 study)
- survival (2 studies)
- risk of overall complications (4 studies)
- risk of removing the breast reconstruction flap or implant due to complications (3 studies).
- risk of skin necrosis (4 studies)
- risk of infection (2 studies)
- risk of hemorrhage (4 studies)

However, the evidence is very unclear.

Based on one study, there did not appear to be a difference in aesthetic outcomes between SSM with immediate breast reconstruction compared to conventional mastectomy and delayed breast reconstruction. One study evaluated the quality of life. The study suggested similar patient satisfaction, social activity, physical aspects, and general condition in people who have an SSM followed by breast reconstruction and those who have a mastectomy without breast reconstruction.

What are the limitations of the evidence?

The studies found were mostly retrospective. This means that participants were chosen years after their surgery, and asked about their experiences after surgery, which may have brought bias into the research studies. Of the 14 studies, two studies commenced at the time of surgery.

People who had conventional mastectomy were likely different to those who had SSM. Most studies did not consider these differences across groups when analyzing the data.

How up to date is this evidence?

The review authors searched for studies that had been published up to August 2019.

Authors' conclusions

Implications for practice

Surgeons are increasingly performing skin-sparing mastectomy (SSM) and related surgeries (such as nipple-sparing mastectomy) for treating breast cancer. In most breast cancer centers in the world, SSM now seems to be the standard surgical treatment when conservative surgery (lumpectomy) is not an option. This review showed the absence of randomized clinical trials to evaluate the efficacy and safety of SSM in breast cancer treatment. The evidence found by this review suggests that SSM could be a safe approach, but this finding is limited mainly due to a lack of randomized clinical trials and poor reporting from observational studies. Additional research is therefore likely to have an important impact on the estimated effect.

The decision to perform this breast surgery for treatment should be individualized and shared between the physician and the patient, considering the potential risks and benefits of each intervention.

Implications for research

Randomized controlled clinical trials (RCTs) are considered the gold standard for evidence-based medicine and are crucial for guiding medical practice through consistent scientific observations. The main advantage of clinical trials is that randomization reduces the chance of selection bias and a confounding effect. Randomization may not be feasible in this surgical field due to the nature of the intervention, and it could substantially increase the cost of performing the research. Consequently, addressing this issue necessitates a balance between practicability and methodological rigor; in particular, a rigorous design to eliminate flaws that could render the results invalid.

This review showed the absence of randomized clinical trials to evaluate the effectiveness and safety of SSM in people diagnosed with ductal carcinoma in situ (DCIS) or invasive breast cancer.

We suggest that future RCTs should:

- use the CONSORT Statement ([CONSORT](#)) to guide study method;
- use standardized criteria to define outcomes and report the time at which the outcome is measured; and

- include long-term follow-up.

When an RCT is not feasible, we suggest cohort studies should:

- use STROBE guidelines (von Elm 2007);
- use standardized criteria to define outcomes and report the time at which the outcome is measured;
- include long-term follow-up;
- use appropriate adjustment for follow-up time in the analysis of outcomes by using survival analysis methods or person-years of follow-up as the denominator for the incidence rates for events of interest; and
- use propensity score matching - a statistical technique that attempts to estimate the effect of a treatment by accounting for the covariates that predict receiving the treatment.

Citation: Mota BS, Bevilacqua JLB, Barrett J, Ricci MDesidério, Munhoz AM, Filassi JR, Baracat EChada, Riera R. Skin-sparing mastectomy for the treatment of breast cancer. Cochrane Database of Systematic Reviews 2023, Issue 3. Art. No.: CD010993. DOI: 10.1002/14651858.CD010993.pub2.

<https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD010993.pub2/full/fr#CD010993-abs-0011>