Systematic reviews: a synthesis of trials or a trail of syntheses?

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Objectives

- Highlight the complexities-challenges faced by clinicians, patients and policy makers
- Stimulate - provoke thought/discussion
- Set the ‘scene’ for 2 workshops
Defining terms

Systematic review
Synthesis
Trials ……..Trails
Systematic Reviews:
syntheses of relevant research consisting of a clearly formulated question and explicit methods to identify, select, critically appraise, extract, and analyze data

The Cochrane Handbook:
http://www.cochrane.org/training/cochranehandbook).
Synthesis

Aggregation of data if available to provide an estimate of net benefit

Quantitative – meta-analysis  Qualitative – narrative synthesis
Quantitative – meta-analysis

Forest plot

Diamond represents the pooled data from five trials SYNTHESIS
Qualitative v narrative synthesis

- Not necessarily a synthesis of qualitative evidence
- If there's a lack of evidence either qualitative or quantitative
- May only be possible to perform a narrative synthesis of trial data if cannot be pooled i.e. clinical heterogeneity between studies or ‘apples and oranges’
- Terms not fully interchangeable
TRIAL
Randomized controlled trial

population

intervention

Outcome

group 1

Outcome

control

group 2
SYSTEMATIC REVIEW

SYNTHESIS

“STRONGER” EVIDENCE

RCT

RCT

RCT

RCT
Screening for breast cancer with mammography (2001 to 2012)
A Cochrane Review

7 RCTS 2001  8 RCTS 2011 (4 UPDATES)
Research adds to fears over testing programme

Continued from Page 1 in the Cochrane Library. There are also female doctors who wish to be screened. It’s an individual decision.

One in nine women in the UK is diagnosed with breast cancer at some time. There were 41,000 cases in 2004—up 81 per cent since 1971.

Dr Gasche and colleagues identified the seven best trials investigating both the benefits and negative effects associated with mammography screening and found that mammography was associated with an increased risk of unnecessary treatment, given that the chance of getting breast cancer is low and the harms are significant.

Screening for breast cancer ‘may harm women’

Breast cancer screening has little impact, say scientists

Breast screening ‘could do more harm than good’

Women operated on needlessly, says report
Breast screen 'wrong care' fears

Concerns have been raised that breast cancer screening might lead to some women undergoing unnecessary treatment.

Researchers looked at international studies on half a million women.

They found that for every 2,000 women screened over a decade, one will have her life prolonged, but 10 will have to undergo unnecessary treatment.

UK experts said women over 50 should go for their breast checks, but a screening pioneer raised doubts about the NHS programme's future.

The report, published in the Cochrane Library, involved a review of breast cancer research papers from around the world.

The scientists found mammograms did reduce the number of women dying from the disease.

But they also discovered it was diagnosing woman with breast cancer who would have survived without treatment, meaning they were undergoing unnecessary chemotherapy, radiotherapy or mastectomies.

About a fifth of cancers picked up by screening are in the milk ducts of the breast.

Some of these cancers will progress while others will not - but there is no way of predicting what will happen.

“Women invited to screening should be fully informed of both benefits and harm”

Dr Peter Gotzsche, researcher
Michael Baum, professor of surgery at University College London who set up one of England’s first screening programme in 1987, told the Daily Telegraph: "This latest evidence shifts the balance even further towards harm and away from benefits."

"If this report stands up, the NHS screening programme should be referred to the National Institute for Health and Clinical Excellence to decide whether it should be closed down."

But a spokesman for the Department of Health said that, as mammography was an accepted, evidence-based technology, it would not be appropriate to refer the screening programme to NICE."

And Professor John Toy, medical director of Cancer Research UK, said: "Researchers in the field all agree that breast screening saves lives although they differ in their views about the balance of the pros and cons."

"Benefits need to be balanced against any disadvantages, as is the case with all medical treatments."

"Certainly women invited for screening should be made aware of both potential benefits and
Screening for breast cancer with mammography
Gotzsche P, Nielsen M (2001-2011)

• Earlier concerns: methodology of included trials and data synthesis
• 2001 Review “The currently available reliable evidence has not shown a survival benefit of mass screening for breast cancer” 7 RCTs
• 2011 Review “Screening is likely to reduce breast cancer mortality” 8 RCTs

It is thus not clear whether screening does more good than harm. Women invited to screening should be fully informed of both benefits and harms.
A trail of trials?
Breast cancer screening 'works and we should move on': researchers

Women should undergo breast cancer screening because it halves the chance of them dying of the disease, according to a new study that claims to draw a line under the controversy.
Confused?
BREAST CANCER DETECTION

This special collection brings together the relevant Cochrane Reviews, including those that review the benefits and harms of screening and examination for breast cancer, and cancer risk genetic assessment.

The Cochrane Reviews in this special collection have been prepared by the authors and editors of the Cochrane Breast Cancer Group and the Cochrane Consumers and Communication Group. The Cochrane Library also published a special collection on metastatic breast cancer in October 2010.

A blog, written by Peter Gotzsche, Director of the Nordic Cochrane Centre, and one of the authors of the Cochrane Review Screening for breast cancer with mammography, is available here.

MAMMOGRAPHY

Screening for breast cancer with mammography.

Screening with mammography uses X-ray to try to find breast cancer before a lump can be felt. The goal is to treat cancer early, when a cure is more likely. This review assesses the effect of screening for breast cancer with mammography on mortality and morbidity.

Interventions for relieving the pain and discomfort of screening mammography

The pain of mammography is recognised as a significant deterrent for women considering this examination and may affect participation in breast screening. This review assesses interventions to reduce or relieve the pain and discomfort of screening mammography.

EXAMINATION

Regular self-examination or clinical examination for early detection of breast cancer.

Breast self-examination and clinical breast examination have been promoted for many years as general screening methods to diagnose breast cancer at an early stage to decrease morbidity and mortality. The possible benefits and harms remain unclear. This review aims to determine whether screening for breast cancer by regular self-examination or clinical breast examination reduces breast cancer mortality and morbidity.

GENETIC ASSESSMENT

Cancer genetic risk assessment for individuals at risk of familial breast cancer.
What have you learnt from the Cochrane Collaboration?

Life is full of trials.
Thank you