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Review

A systematic review of decision aids for patients making a decision about treatment for early breast cancer

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ABSTRACT

Several complex treatment decisions may be offered to women with early stage breast cancer, about a range of treatments from different modalities including surgery, radiotherapy, and endocrine and chemotherapy. Decision aids can facilitate shared decision-making and improve decision-related outcomes. We aimed to systematically identify, describe and appraise the literature on treatment decision aids for women with early breast cancer, synthesise the data and identify breast cancer decisions that lack a decision aid.

A prospectively developed search strategy was applied to MEDLINE, the Cochrane databases, EMBASE, PsycINFO, Web of Science and abstract databases from major conferences. Data were extracted into a pre-piloted form. Quality and risk of bias were measured using Qualsyst criteria. Results were synthesised into narrative format.

Thirty-three eligible articles were identified, evaluating 23 individual treatment decision aids, comprising 13 randomised controlled trial reports, seven non-randomised comparative studies, eight single-arm pre-post studies and five cross-sectional studies. The decisions addressed by these decision aids were: breast conserving surgery versus mastectomy (+/− reconstruction); use of chemotherapy and/or endocrine therapy; radiotherapy; and fertility preservation. Outcome measures were heterogeneous, precluding meta-analysis. Decisional conflict decreased, and knowledge and satisfaction increased, without any change in anxiety or depression, in most studies. No studies were identified that evaluated decision aids for neoadjuvant systemic therapy, or contralateral prophylactic mastectomy.

Decision aids are available and improved decision-related outcomes for many breast cancer treatment decisions including surgery, radiotherapy, and endocrine and chemotherapy. Decision aids for neoadjuvant systemic therapy and contralateral prophylactic mastectomy could not be found, and may be warranted.

Contents

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Introduction

Over the last 40 years, breast cancer survival rates in developed nations have improved by at least 30% due to earlier detection and better treatments [23]. Along with these gains, an increasing array of treatment options have become available for patients and their doctors [15]. While patient choice is integral to the shared decision-making model of modern medicine [5], this choice can be a burden on patients [32]. Patient decision aids (DAs) have been developed for a range of health conditions including breast cancer. These have been successful in informing, involving and empowering patients to participate in decision-making, particularly in the cancer context [36,48].

DAs are suited to decisions that are preference-sensitive (i.e. there are legitimate options with different outcomes, which individuals may value differently). One example of such a decision is breast conserving surgery (BCS) versus mastectomy, which have equivalent survival outcomes in suitable patients, but differ in cosmesis and recurrence risks [56]. Women may also be asked to define the risk-benefit ratio at which they will accept treatment, which in the case of adjuvant chemotherapy, is variable and depends on individual values [9].

Decisions about individual early stage breast cancer treatments do not take place in isolation, but often depend on other modalities. Over the past 20 years, the number of breast cancer treatment DAs has multiplied. However, these DAs generally target only *one* decision choice. It is not clear how these complement each other to provide women with complete coverage of all the relevant breast cancer decisions, nor whether there are any DAs which attempt to address more than one treatment decision.

Recent reviews of DAs for patient treatment and screening decisions across all health conditions [48] and for cancer decisions [51] found good evidence that DAs increase knowledge and decrease decisional conflict, and moderate evidence that they increase active participation in decision-making and improve accuracy of risk perception. These reviews discuss individual DAs only briefly. Prior reviews have focussed on surgical decision-making in early stage breast cancer [38,55], but other closely related DAs were not evaluated, such as for radiotherapy or systemic therapy. Therefore a review of DAs for early stage breast cancer, including all treatment options, was considered important to facilitate better access and integration of DAs across modalities.

We aimed to assess the effects of treatment DAs on decision-related outcomes in women making treatment decisions for early stage breast cancer. We also aimed to determine which breast cancer treatment decisions had an appropriately evaluated DA available and identify any gaps in the evidence.

Methods

This systematic review was designed and conducted according to the principles of the PRISMA statement for reporting of systematic reviews and meta-analyses [33]. The protocol was prospectively registered and is available on the Prospero register of systematic reviews (www.crd.york.ac.uk/PROSPERO, CRD42014009474). By using broad search terms and including published papers and conference abstracts, the search strategy (Appendix A) was designed to be maximally inclusive. Studies were eligible if: (i) original research was reported; (ii) a comparative or non-comparative design was used; and (iii) patient outcome data were reported related to the use of a patient treatment DA for early stage breast cancer. A DA was defined as: a tool or technology, including paper-based, video, audio, electronic or multimedia; and containing information about two or more options and the associated relevant outcomes [10]. Quantitative and qualitative papers were eligible. Studies of DAs for breast cancer prevention or metastatic breast cancer were excluded due to major differences in the treatment intent of these decisions compared with early stage breast cancer.

The following databases were searched: Cochrane Central Register of Controlled Trials, Database of Abstracts of Reviews of Effects, the Cochrane Database of Systematic Reviews, EMBASE, MEDLINE, PsycINFO, Web of Science, and the Ottawa Decision Aid Library Inventory (http://decisionaid.ohri.ca/index.html). Databases were searched from their inception to 25th February 2015. Conference abstracts from 2011 to 2015 were searched by hand: ASCO Meeting Library, the San Antonio Breast Cancer Symposium Library, European Breast Cancer Conference, European Society of Medical Oncology Annual Meeting. The EMBASE database includes abstracts from relevant conferences including the World Congress on Psycho-Oncology and the annual meeting of the Multinational Association of Supportive Care in Cancer. Reference lists were searched for additional papers not identified in the database search.

After removing duplicate results, titles and abstracts were screened to identify potentially eligible papers. The full text of potentially eligible papers was then reviewed to create a list of original research articles for inclusion in the review. Studies were rejected if they: did not report on patient outcomes; did not evaluate a treatment DA; were a review article without original research results; or were duplicate results, for example a conference abstract reporting on the same results as a published article.

A pre-piloted form was developed and used to extract data from eligible studies. Quality and risk of bias were assessed at a study level using the Qualsyst scoring system, which is designed for use on a variety of study types including randomised, non-randomised comparative, cohort and qualitative studies [27]. Qualsyst produces