QUALITY INDICATORS OF SURGICAL BREAST CANCER CARE IN SOUTH AFRICA

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Introduction

Quality indicators (QIs) have contributed to improved patient outcomes in high-income countries (HICs), yet they have not been established for lower-resourced healthcare settings. Quality improvements are particularly crucial in low- to middle-income countries (LMICs), where patient outcomes, such as survival rates, are disproportionately poor. It is probable that quality indicators, along with structural requirements, are not readily transferable but need to be tailored for successful application in LMICs. The quality of surgical breast cancer care has never been assessed in South Africa and will likely reveal significant gaps in care. Furthermore, identifying key indicators with a demonstrable impact on survival would provide actionable interventions to enhance patient outcomes.

Objectives

The thesis had four distinct objectives.

1) To review the literature on quality indicators within the global and LMIC context and develop a contextual local South African set of diagnostic and surgical QIs.
2) To measure the adherence rates to these QIs amongst women with breast cancer in South Africa.
3) To establish the requirements of breast centres in South Africa.
4) To assess the effect of individual and composite QI adherence on overall survival in women with breast cancer in South Africa and to compare treatment pathways across sites.

Methods

1) The literature on quality indicators (QIs) for the diagnosis and surgical management of breast cancer was systematically reviewed and a local set of QIs was defined with a modified Delphi process.
2) QI adherence levels were measured in 3545 patients from the South African Breast Cancer and HIV Outcomes (SABCHO) cohort, cross-site variances were identified with descriptive statistics, and comparisons were made against international standards.
3) Breast centre requirements were examined by compiling tables of existing international standards alongside proposed South African standards. This was followed by a facilitated discussion to reach expert consensus on centre requirements and a stepwise implementation process for Southern Africa.
4) A survival model was sequentially developed using 2716 patients to evaluate the impact of individual and composite model QI non-adherence on survival. It employed both univariate and multivariate logistic regressions and Cox's proportional hazard regressions. Kaplan–Meier survival curves were stratified by QIs, and survival comparisons were determined by a log-rank test. Patient treatment pathways from the different study sites were compared and plotted onto Sankey diagrams and network plots.

Results

1) We defined a South African set of ten mandatory QIs.
2) Adherence to QIs was overall lower than in HICs, with emergent gaps identified in the delivery of radiation after breast-conserving surgery (66.7% adherence) and underutilisation of sentinel lymph node biopsy (39.6%). Multidisciplinary team (MDT) discussion (72.2%), histopathology reporting (62.0%) and the rate of breast-conserving surgery (19.4%) need to be improved.

3) We defined a set of breast centre requirements tailored to LMICs in sub-Saharan Africa with a step-by-step implementation plan. Both the QI set and the centre requirements were endorsed by the Breast Interest Group of Southern Africa (BIGOSA).
4) The overall 5-year survival was 43%. The different SABCHO sites showed significant variances in treatment pathways, which were adjusted to local resource availability, particularly to the delay to radiotherapy. Survival was affected by various individual QIs, including MDT discussion, receipt of radiotherapy and BCS, as well the composite QI model.

Conclusion

1) A South African set of QIs for the diagnosis and surgical treatment of breast cancer was developed.
2) This was applied to establish the first benchmark of care in South Africa. Overall, adherence levels were lower compared to international standards, highlighting poor radiation delivery, among other gaps in care.
3) The centre requirements and the QI set offer implementable approaches to measure and improve care and a tool for step-wise implementation.
4) Overall survival rates were alarmingly low, necessitating urgent interventions. Both individual and composite QI adherence levels are associated with improved survival outcomes. Mandatory MDT discussions can significantly enhance breast cancer survival in South Africa.