INTRODUCTION

- Contralateral prophylactic mastectomy (CPM) rates have more than doubled in the UK and risen by 150% in the USA, not matched by an increase in bilateral breast cancer. We observed an increase in uptake of autologous breast reconstruction at Imperial College Healthcare (NHS) [see Figure 1].
- For patients with sporadic breast cancer (BC), rates of contralateral cancer are low (0.7%/ annum) and patients with unilateral disease CPM confers significant risk reduction only in patients with high-risk family or genetic mutations, but no survival advantage.
- CPM with autologous reconstruction has major resource implications, physical (2x risk complication profile) and psychological morbidity (regret, distress, cosmetic disappointment). Patients receiving CPM should be restricted to those with high contralateral disease risk (>30% lifetime) and good prognosis from index BC. CPM is often driven by high-priority perceived risk and these factors may not be appropriately weighted.
- In absence of formal risk scoring (contralateral risk and prognosis) certain patients with unilateral BC with low contralateral risk and/or poor prognosis from index disease may undergo CPM without the benefit of risk reduction.

AIMS AND HYPOTHESIS

The aim of this study was to review our practices in offering CPM to patients undergoing mastectomy and immediate autologous free-flap reconstruction for unilateral breast cancer. We aimed to assess the impact of formal contralateral risk score and corresponding estimates of survival from index disease on decisions for CPM.

Our hypothesis was that upon formal scoring, the majority of patients with unilateral BC receiving CPM would have a high risk of contralateral disease (>30% lifetime) and good prognosis (>70% 10-year predicted survival).

METHOD

- A retrospective review of n=272 (n=252 after exclusions) consecutive patients undergoing Mastectomy and Autologous reconstruction at an Oncoplastic Breast Centre between 2013 and 2015.
- Prognostic survival estimates using PREDICT online® were computed using age, diagnostic mode of presentation and histopathological factors. Modified PREDICT scores were calculated based on treatment patients received. Extensive family history and tumour biology was used to calculate the contralateral BC risk using web based BODICEA risk calculator®.
- Operating room times (mins) from SurgNet®, Cancer platform, and post-operative complications (Clavien-Dindo classification) and length of hospital stay (days) from Cerner Millennium® electronic records.
- Patients were classified according to lifetime contralateral risk (<2% vs. >30%) and 5-year survival of (<79% vs. >80%) [National Institute of Clinical Excellence in UK criteria for offering CPM].
- Data was analysed using SPSS (v20). Modified survival estimates (PREDICT) were correlated with contralateral risk scores (BODICEA®). Categorical outcome data was computed using Fisher’s exact test and continuous data was analysed using the Wilcoxon Sign rank test, to compare outcome variables between unilateral and bilateral mastectomy with CPM. Statistical significance threshold set at <0.05.

RESULTS (A: CPM DECISION MAKING)

- N=252 patients with mean age (SD) 53 years (SD 16.8) were reviewed. 215 patients underwent unilateral mastectomy and 37 patients had bilateral mastectomy and autologous reconstruction. There was no correlation between BODICEA and PREDICT 10-year survival estimates scores (p=0.785).
- A substantial proportion of women receiving CPM were not at high-risk of CLBC (20/47 = 54%). Many receiving CPM (7.9%) had CLBC risk <30%. Of these n=8 (21.6%) were performed with no documented reason or at patient’s request; n=13 (33.5%) for contralateral non-invasive disease (DCIS, LCIS or papilloma) with or without FR, n=4 (10.8%) had FR and finally n=3 (8%) had ipsilateral cancer recurrence. However, as illustrated 2.3% (5/125) of patients were identified as not undergoing CPM despite a high CLBC score (>30%) and ‘good’ prognosis.

RESULTS (B: CPM IMPACT)

- Patients undergoing CPM had significantly increased hospital-stay (mean ± SD; unilateral=4.2 ± 2.6 days vs. CPM=7.6 ± 4.4 days; p<0.002).
- There was no significant difference in operative time (mean: SD) CPM= 52.0 ± minutes (123.8) vs. unilateral= 452.0 ± minutes (116.0); p=0.45.
- Complication rates were modestly elevated in the CPM group (37% vs. 30%) and patients were twice as likely to require surgical re-intervention in the CPM group (13% vs. 17%).

In the absence of prospective scoring of contralateral risk certain patients are undergoing CPM and reconstruction without significant benefit, and a smaller proportion of patients with good prognoses and substantial contralateral risk are not undergoing CPM. Prospective calculation of contralateral risk and predicted survival could improve decision making in patients undergoing CPM. Better selection will spare certain patients from all the risks associated with undergoing major surgery with limited risk reduction. Further work is required to develop a quick and convenient surrogate score which can be calculated in clinic, in the absence of the final histology to aid decision making.

Can PREDICT and BODICEA scores help identify patients that would benefit from risk reducing mastectomy?

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