Audit

Is discharge home with drains after breast surgery producing satisfactory outcomes?

Neil K Chadha*, Sandra Cumming, Ruth O'Connor, Michael Burke

Department of Breast and Endocrine Surgery, Northwick Park Hospital, Harrow, Middlesex, UK

Aim: To assess whether discharging patients after breast cancer surgery with drains *in situ* and specialist nurse support is producing satisfactory outcomes.

Patients and Methods: A retrospective study assessing outcome subjectively and objectively in patients treated at the Breast Unit. The full population of patients (124) operated for breast cancer and discharged with drains *in situ*, comprising 84 mastectomies and 40 wide local excisions with axillary clearance (WLE). Patients were asked to complete a postal questionnaire, and complication and activity data were analysed.

Results: The questionnaire response rate was 60%. Only 10% of patients felt the care received at home was 'worse' than that received in hospital. Over a quarter of locally-conservative surgery patients described not being informed of the plan to discharge them with a drain *in situ* compared to only 9% of mastectomy patients. Only 6% of patients felt 'confident' going home early from hospital. On their first day at home, two-thirds of patients admitted feeling anxious and this was halved by the second day. Lack of confidence emptying drains was significantly worse in older patients. Complication rates were low and mean bed-days saved per patient was 4.7 days (SD 2.3).

Conclusions: Overall patient satisfaction, hospital bed-days saved and low complication rates showed the efficacy of this early discharge policy. There were specific areas needing improvement. Patients should be more clearly informed of the early discharge plan. Greater attention should be paid to allaying patient anxiety during the first day at home, especially in older patients.

Key words: – Questionnaires – Breast surgery – Breast neoplasms – Postoperative care – Drainage

Breast cancer is a common condition affecting 1 in 12 women in the UK.¹ Surgery for breast cancer will often involve a mastectomy or locally-conservative surgery ('wide local excision' or WLE) with clearance of axillary lymph nodes. These two surgical options require the insertion of drains to prevent fluid accumulation in the wounds (seroma formation). These drains are removed when criteria are met indicating they are no longer required.

Traditionally, patients have remained in hospital postoperatively until the drains are removed. The physical recovery after breast surgery is rapid and, in the absence of drains, patients could be ready for discharge on the second or third postoperative day. The drains may remain in for as many as 10 days, therefore prolonging hospital stay for these patients. The mean postoperative stay in the UK before drain removal is 7 days.²

Correspondence to: Mr M Burke, Consultant in Breast and Endocrine Surgery, Northwick Park Hospital, Watford Road, Harrow, Middlesex HA1 3UJ, UK. Tel: +44 (0) 20 8869 2618; Fax: +44 (0) 20 8235 4114; E-mail: michael.burke@nwlh.nhs.uk

***Present position:** Neil K Chadha, Specialist Registrar in ENT, South Western Deanery

Figure 1 How would you describe your short stay in hospital?

Increasing hospital costs and government policy demanding improved efficiency³ have led to the development of a protocol in this Breast Unit for the discharge of patients undergoing breast cancer surgery with their drains still *in situ*. A team of specialist hospital-based nurses visit these patients at home daily and help with drain and wound care. The drains can be removed by the specialist nurses when specific criteria are met. It is important to assess the impact of this on complication rates and patient satisfaction.

Research in the US and UK has produced some evidence for the success of early discharge after breast surgery.⁴⁻⁸ However, the research protocols used in these studies varied considerably and there are deficiencies in the evidence-base. There is little research assessing outcome from the patient's perspective and the use of certain exclusion criteria has created a selection bias towards patients who are inherently more likely to cope at home.^{5,7} There has been a reliance on district nurses for providing care to these patients producing a heavy demand on community resources.^{5,6} Further, there is no published study comparing the outcome after early discharge for patients having had mastectomy versus locally conservative surgery with axillary clearance.

This study assesses the impact of early discharge and home drain management on the population of a large district general hospital. Outcome is evaluated subjectively in terms of patients' experiences and satisfaction and objectively in terms of complication rates and hospital bed-days theoretically saved.

Patients and Methods

The subjects identified were 124 consecutive female patients treated at the Breast Unit at Northwick Park Hospital between 1998 and 2002. Only patients discharged home after

surgery with a drain, and those confirmed alive on the hospital database were included. Patient ages ranged from 38–86 years (mean, 61.4 years; median 64 years; SD 11.8). A questionnaire was posted with a covering letter, patient information sheet, and prepaid envelope. The questionnaire included questions on satisfaction with hospital stay, information availability, and support at home. Those not responding were sent one reminder letter. Responses were entered into a spreadsheet.

Design

The overall design was a retrospective survey using a combination of quantitative methods.

Analysis of hospital activity data

The data were collected from hospital notes, the computer system and breast specialist nurse record. The data included demographics such as patient age and gender, date of discharge, occurrence of deep vein thrombosis, and other complications. The number of bed-days theoretically saved was calculated equated as the number of further days the drain was still *in situ* after the patient was discharged home.

Data analysis

Data were analysed using the Statistical Package for the Social Sciences (SPSS). Comparisons were made with respect to operation type and age group and probabilities of measured differences calculated using Pearson Chi-squared tests and Likelihood ratios.⁹

Results

Questionnaire

Response rate and demographics

Responses were received from 74 patients in total (60%). This included 48 patients (65%) who had mastectomy and 26 (35%) who had wide local excision. Patients were subdivided into 'younger' (38–63 years) and 'older' (64–86 years) groups using the median age (64 years). These sub-groups were compared in the data analysis.

Views on 'early discharge'

Describing their short stay in hospital, 77% of all patients felt it was 'good' or 'very good', but only 8% felt that being partly cared for at home was better than previous experiences of hospital-only care. Of patients 91% felt the care received at home was 'better' or 'the same' as that received in hospital. Notably, 'older' patients (86%) were more likely than their 'younger' counterparts (67%) to feel that hospital care was 'good' or 'very good' ($P = 0.033$; Fig. 1). There was no

Figure 2 How did the 'early discharge' service compare with your previous hospital experiences?

significant difference between mastectomy and wide-local excision (WLE) patients.

Some patients ($n = 39$) felt able to compare this experience of early discharge with previous hospital-only care and the distribution of their views are shown in Figure 2. Only 8% of these patients preferred the early discharge home-care service to previous hospital-only care.

Views on information provision

Overall, nearly a quarter of patients (21%) reported not being informed of the plan to discharge them 'early' and 15% said they were not told they would need to use a drain *in situ*. When subdivided by operation type, interestingly 27% of WLE patients said they were not informed compared to only 8% of mastectomy patients ($P = 0.035$; Fig. 3) Age did not appear to affect views on information provision. Of those patients that were aware of the discharge plan, the early discharge was discussed by nurses in 36% and doctors in 73% of occasions.

Anxiety

Three-quarters of the sample (75%) said they were generally comfortable about the thought of going home early, with a quarter expressing feelings of initial anxiety. When they were actually discharged, the anxiety rate rose, with 65% of respondents reporting anxiety over the first few days at home, while the rest stating they 'never' felt anxious at any stage. On their first day at home, 30% reported feeling anxious, but this dropped to 8% and remained at approximately this level for the next 2–10 days (Fig. 4). 'Younger' patients (59%) were more likely to report anxiety than their 'older' counterparts (40%), but this was not statistically significant. No correlations could be found between the anxiety rate and type of operation or whether patients had felt adequately informed about the early discharge policy.

Figure 3 Were you informed you would be going home with a drain?

Emptying drains

While the majority of the sample reported being taught how to empty their drains at home, either by ward nurses (17%) or specialist nurses (52%), nearly a third (31%) felt they had not been taught at all. Of those who had been taught ($n = 45$), 71% felt the information provided was 'good' or 'very good', with 10% expressing dissatisfaction. Nearly two-thirds of patients reported feeling confident in emptying their drains within the first 2 days at home (62%), although just over a quarter (27%) were 'never' confident in emptying their drain. Thirty-seven respondents (50% of the sample) did not answer this question.

There was statistically significant differences between the 'younger' and 'older' groups ($P < 0.05$). Of the 'younger' group, 50% were confident on day 1, compared to only 15% of the 'older' group (Fig. 5). By day 2 this had increased to 75% of the 'younger' group but only 39% 'older' group. Furthermore, 39% of the 'older' group were 'never' confident compared to only 21% of the 'younger' group.

Satisfaction with overall support

Almost all patients (97%) were satisfied with the overall care provided by the specialist nurses visiting them at

Figure 4 When did you feel anxious at home?

Figure 5 When did you feel confident at emptying the drain?

home, 87% stating they found this care 'very supportive'. There were no significant differences between age groups or operation type.

Activity data

The theoretical number of bed-days saved per patient (*i.e.* number of days the drains remained *in situ* after discharge) ranged from 1 to 10 (mean, 4.7 days; median, 4 days; SD 2.3; Fig. 6). The total number of bed days saved in this study was 583. There were no significant differences between different age groups or operation types.

The vast majority (91%) of patients reported experienced no complications while emptying their drains at home. Infections occurred in only 4% of cases ($n = 5$), seromas in 6% ($n = 7$), and no clinically detected deep vein thrombosis was detected. Treatment type did not appear to affect the rate of complications, but interestingly all of the wound infections occurred in the 'older' group, none in the 'younger' group.

Discussion

This study achieved a good response rate (60%) for a postal survey. The lack of uniformity in the responses received leads us to believe the sample is likely to be representative.

Our study revealed mixed feelings of patients towards the early discharge policy and drain management at home. The majority of patients felt the care they received at home was better than or equal to the in-patient phase of their treatment. In-patient treatment was described as 'good' or 'very good', and few were dissatisfied. The older patients showed significantly higher satisfaction with the hospital care than younger patients, possibly reflecting a modern trend towards increased patient expectations.

Patients reflected that previous experiences of treatment solely in hospital were either preferable or equal to this early

Figure 6 Number of days with drain at home (bed-days saved).

discharge and community management. Few patients actually preferred homecare, and this contrasts with work done by other groups. Boman *et al.*⁴ previously found no difference in the satisfaction between early discharge and long hospital stay but in that study, patients were given a choice. This undoubtedly creates a selection bias in favour of patients who felt they were more likely to manage at home. In another study, Bonnema *et al.*⁶ reported high satisfaction ratings after early discharge but their 'early' group (were actually discharged relatively late on day 4).

The similarity in satisfaction between the mastectomy and locally-conservative surgery groups is interesting and has not been previously explored in the literature. Undergoing mastectomy is very emotionally demanding and up to 25% of women have been shown to develop depressive illness.¹⁰ A surprising 27% of patients denied being informed about the early discharge after the locally-conservative surgery (compared to 8.5% on mastectomy). This could reflect patients in this group being given information less readily than those in the mastectomy group, who are perceived to be more anxious and undergoing a more 'stressful' operation.

In all groups there was a steady decrease in anxiety from the second day at home onwards. The most significant decrease in anxiety was after the first day, probably reflecting patients' fears about drain management and the level of support they would receive. Correspondingly, the greatest increase in confidence was between the first and second days at home. A large proportion of the older group took more than 4 days to become confident, and nearly 40% never felt confident managing their drains.

The majority of patients showed high levels of satisfaction in the specialist nurse teams with only 3% feeling unsupported (Fig. 7). These nurses visited patients daily and were funded by the hospital. Previous groups

Figure 7 How supportive did you feel the specialist nurses were at home?

have employed a variety of methods for care of patient's drains in the community. This has included: (i) teaching the patients to manage drains themselves with the drains eventually removed in either the out-patient department^{8,10} or by a nurse at home;⁴ (ii) using district or community health nurses to visit patients daily or alternate daily and remove the drains;^{5,6} and (iii) specialist nurses visiting patients on alternate days.⁷

The complication rates in our study compare favourably with those in other studies employing early discharge. We had an infection rate of 4% (c.f. 4%,⁴ 26%,⁷ 0%⁵) and seroma rate of 6% (c.f. 7%,⁴ 36%,⁷ 18%⁵). Previous studies have found no significant difference in complication rates between early and late discharged patients.⁴⁻⁸

The number of days patients had their drains *in situ* at home can be equated to the number of bed-days in hospital theoretically saved. Therefore, a considerable saving was made in our study. Drains were removed after between 1 and 10 days (mean, 4.7 days). The total number of bed days saved in the 124 patients used in this study is a staggering 583 days. Previous work has found keeping patients in hospital until their drains are removed takes an average of 7 days.² Therefore, our study shows no increase in the length of time before drain removal if carried out at home. Allowing for the costs involved in providing a specialist nurse to monitor patients at home, considerable financial savings could be made by discharging patients with their drains *in situ*.

Conclusions

This study has raised some interesting issues concerning patient satisfaction with early discharge after breast surgery. The cost benefits of sending these patients home with their drains after breast surgery are clear, and this practice is becoming increasingly widespread in other centres. Previous studies may have failed to highlight patient's dissatisfaction in some aspects of this regimen.

Notably, although patients are generally satisfied with early discharge, only few actually preferred this to their previous exclusively hospital-based experiences. Patients also seem to require increased support during the early period at home, and in particular greater attention needs to be paid to allaying the fears of more senior patients. Also interesting is the lack of significant differences between the patients having mastectomy or more conservative surgery.

Encouragingly satisfaction with the support given by the specialist breast care nurses was very high. With minor refinements to the current regimen for management of these patients after breast surgery, a very satisfactory service, in terms of patient satisfaction, cost benefits and complication rates seems ultimately attainable. In the future, prospective, and ideally randomised-controlled studies should be performed to improve our understanding of the impact of early discharge on patients.

Acknowledgements

The authors would like to acknowledge the considerable help in project design and statistical analysis from Justin Gore of the Research and Development Department at Northwick Park Hospital. This project had full approval of the North West London Hospitals Ethics Committee.

References

- Quinn M, Allen E. Changes in incidence of and mortality from breast cancer in England and Wales since introduction of screening. *BMJ* 1995; **311**: 1391-5.
- Petrek JA, Peters MM, Nori S, Knauer C, Kinne DW, Rogatko A. Axillary lymphadenectomy. A prospective, randomized trial of 13 factors influencing drainage, including early or delayed arm mobilization. *Arch Surg* 1990; **125**: 378-82.
- Department of Health. *The NHS Plan: A plan for investment, a plan for reform*. The Command Paper 4818-1. London: Department of Health, 2000.
- Boman L, Björvell H, Cedermark B, Theve NO, Wilking N. Effects of early discharge from hospital after surgery for primary breast cancer. *Eur J Surg* 1993; **159**: 67-73.
- Holcombe C, West RE, Horgan K. The satisfaction and savings of early discharge with drain *in situ* following axillary lymphadenectomy in the treatment of breast cancer. *Eur J Surg Oncol* 1995; **21**: 604-6.
- Bonnema J, van Wersch AM, van Geel AN, Pruyn JF, Schmitz PI, Paul MA *et al*. Medical and psychosocial effects of early discharge after surgery for breast cancer: randomized trial. *BMJ* 1998; **316**: 1267-71.
- Bundred N, Maguire P, Reynolds J, Grimshaw J, Morris J, Thomson L *et al*. Randomised controlled trial of effects of early discharge after surgery for breast cancer. *BMJ* 1999; **317**: 1275-9.
- Orr RK, Ketcham AS, Robinson DS, Moffat FL, Tennant ND. Early discharge after mastectomy. A safe way of diminishing hospital costs. *Am J Surg* 1987; **53**: 161-3.
- Miles, Huberman. *Patients at home versus hospital data. Qualitative Data Analysis*. London: Sage, 1994.
- Fallowfield IJ, Hall A, Maguire GP, Baum M. Psychological outcomes of different treatment policies in women with early breast cancer outside a clinical trial. *BMJ* 1990; **301**: 575-80.