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MULTI-CENTRE PROSPECTIVE EVALUATION OF NEGATIVE PRESSURE WOUND THERAPY (NPWT) IN PATIENTS UNDERGOING ONCOPLASTIC BREAST SURGERY

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Objective: Oncoplastic breast surgery is well-established but has a higher risk of wound complications. This may result in a delay in receiving adjuvant therapy, increased hospital visits with associated financial implications, and sub-optimal cosmetic outcomes. Negative pressure wound therapy (NPWT) has emerged as an additional tool to reduce wound complication rates, but further evaluation is required to evaluate its efficacy. This study investigated the prophylactic use of PICO® NPWT in patients undergoing oncoplastic breast surgery. We determined the rate of wound-related complications, including dehiscence, necrosis, implant loss, and infection. We compared our findings with data from the National Mastectomy and Breast Reconstruction Audit 2011 (NMBRA) and implant-based Breast Reconstruction Audit (iBRA). **Methods:** This was a prospective multi-centre national audit. The participating UK breast units routinely used NPWT for oncoplastic breast surgical procedures. Data collection included rates of wound dehiscence, wound necrosis, wound infection, and implant loss. The study findings were compared against the NMBRA and the iBRA studies. **Results:** Data from 267 patients were included in the study from 7 centres. The mean duration of PICO use was 6.6 [SD 1.9 days]. In all, 36 patients (13.5%) developed post-operative wound complications; 16 patients (6%) developed skin flap necrosis; wound dehiscence occurred in 13 patients (4.9%); and 15 patients (5.6%) developed post-operative wound infection. Of the whole cohort, 11 patients (4.1%) required further surgery due to wound complications, and 8 patients (3%) had a delay in the receipt of adjuvant therapy. A total of 158 patients underwent mastectomy with immediate implant-based breast reconstruction. The post-operative wound complication rate was comparable in this subgroup (n=22; 13.9%). Skin flap necrosis was seen in 10 patients (6.3%), wound dehiscence was seen in 7 patients (4.4%), and 8 patients (5.1%) developed wound infection. The implant loss rate was 3.8%. The estimated total cost savings were ￡84,613 and ￡316.90 per patient. **Conclusion:** This study suggests that prophylactic use of NPWT in oncoplastic breast surgery results in a low rate of wound-related complications with associated healthcare cost benefits. A prospective randomised controlled trial is required to further evaluate the prophylactic use of NPWT in oncoplastic breast surgery.

Keywords: Breast surgery. Implants. Complications. Negative pressure therapy.