Comparative Analysis of 18-Month Outcomes and Costs of Breast Reconstruction Flap Procedures

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Abstract

Purpose: To examine complication profile and costs of alternative approaches to flap procedures in post-mastectomy breast reconstruction.

Methods and Materials: Retrospective analysis of patients from a national medical claims database[1] receiving free flap, LD flap with implant or expander, or TRAM flap breast reconstruction during first 6 months of 2008. Reviewed all medical claims during 18 months post-flap surgery to examine complications, returns for reconstruction-related care, and costs.

Results: Study population included 828 female patients, with 274, 302, and 252 receiving free flap, LD flap, and TRAM flap surgeries, respectively. Mean age 49.9 years. Rates of diabetes, smoking, and obesity were similar among the three study arms. Post-reconstruction radiation treatment was least frequent after free flap (5.8%; $p < 0.01$) vs. LD flap (11.6%) and TRAM flap (13.5%). Overall, likelihood of experiencing ≥1 post-reconstruction complication did not differ significantly between the study arms; 28.1% of patients with free flap experienced at least one post-procedure complication vs. 31.0% of TRAM flap patients and 36.4% of LD flap patients ($p = 0.094$). Per-patient complication rates differed by study arm for graft-related complications (highest: LD, 16.6%; $p < 0.001$) and hematoma/seroma (highest: LD, 6.0%; $p = 0.032$). No significant differences among study arms were found for infection, breast pain, procedural complications, skin or connective tissue complications, or wound problems.

Return events per 100 patients showed more differences than per-patient complication rates. TRAM flap patients returned more often for complications overall: 109.9 returns per 100 patients. Among individual complications, TRAM flap patients returned more often for infection, procedural complications (e.g., surgical complications), and wound complications (e.g., open chest wound). LD flap patients had significantly higher return rates for implant/graft complications and hematoma/seroma. TRAM flap patients had highest cost of complications ($3930 per reconstructed patient over 18 months; difference not significant vs. LD flap [$3241] and free flap [$2906]) but not the highest overall costs. Free flap patients had highest mean total cost, including initial reconstruction and related downstream care: $56,107 per reconstructed patient vs. $30,783 for LD flap patients and $33,344 for TRAM flap patients.

Limitations of analysis reflect known limitations associated with retrospective medical claims data.

Conclusion: High complication rates in claims data, contrary to clinical reports, bear further investigation.

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[1]Thomson Reuters MarketScan®