

Table 1: Autologous breast reconstruction patient risk factors for needing post-operative blood transfusion

Variable	Odds Ratio	95% Confidence Interval	Significance (p-value)
<i>Patient Factors</i>			
BMI over 30	0.802	0.547-1.176	0.258
Diabetes	2.180	1.196-3.972	0.009*
Hypercoagulable disorder	1.434	0.573-3.588	0.439
Bleeding disorder	3.564	1.349-9.416	0.006*
Hypertension	1.192	0.771-1.841	0.43
Hyperlipidemia	1.473	0.912-2.379	0.111
Coronary artery disease	3.883	1.029-14.658	0.046*
Congestive heart failure	9.252	0.955-89.643	0.049*
Cardiac arrhythmia	0.783	0.334-1.839	0.574
Chronic obstructive pulmonary disease	4.615	0.764-27.897	0.101
Obstructive sleep apnea	1.126	0.717-1.769	0.605
Chronic kidney disease	0.332	0.042-2.641	0.274
<i>Surgical Factors</i>			
Bilateral reconstruction	2.042	1.313-3.176	0.001*
Timing: Immediate vs Delayed Recon.	0.759	0.514-1.122	0.166

Table 2: Post-operative outcomes associated with blood transfusion following DIEP Flap reconstruction

Variable	Odds ratio	95% Confidence Interval	Significance (p-value)
Any donor site complication	1.465	0.965-2.224	0.072
Any recipient site complication	1.65	1.129-2.411	0.009*
Any minor surgical complications	1.249	0.847-1.842	0.261
Any surgical site infection	0.873	0.483-1.576	0.651
Donor SSI	2.022	0.857-4.775	0.102
Recipient SSI	0.614	0.292-1.293	0.195
Any seroma	0.891	0.465-1.705	0.727
Donor seroma	0.974	0.429-2.209	0.95
Recipient seroma	0.824	0.328-2.073	0.681
Any delayed wound healing	1.088	0.532-2.224	0.817
Donor delayed wound healing	1.444	0.577-3.613	0.43
Recipient delayed wound healing	1.3	0.557-3.035	0.544
Any dehiscence	1.386	0.912-2.107	0.125
Donor dehiscence	1.779	1.123-2.819	0.013*
Recipient dehiscence	1.08	0.625-1.868	0.782
Any fat necrosis	1.022	0.672-1.555	0.919
Donor fat necrosis	0.869	0.179-4.231	0.862
Recipient fat necrosis	1.022	0.667-1.565	0.922
Any mastectomy flap necrosis	1.766	0.930-3.353	0.079
^a Post-operative DVT and/or PE	-	-	-
Post-operative systemic infection	1.926	0.782-4.745	0.147

Introduction

- **Gold Standard in Breast Reconstruction:** The deep inferior epigastric perforator (DIEP) flap is widely recognized as the preferred method for autologous breast reconstruction
- **Risks Associated with DIEP Flaps:** Studies indicate that prolonged operative times and larger flap sizes may elevate the risk of surgical blood loss and the need for perioperative blood transfusions
- **Variability in Literature:** Despite existing research, findings on perioperative blood loss and transfusion requirements in DIEP flap procedures remain inconsistent across studies, ranging from 9% to 80%^{1,2}
- **Clinical Relevance:** Understanding transfusion risks in DIEP flap reconstruction is crucial for optimizing patient outcomes and minimizing complications in breast reconstruction

Purpose

- To identify patient and operative risk factors that increase the need for perioperative blood transfusions in DIEP flap breast reconstruction
- To assess the impact of perioperative blood transfusion on post-operative complications, aiming to guide risk mitigation strategies in clinical practice

Methods

- A retrospective cohort study examined DIEP flap breast reconstruction patients at a large academic institution from 2015-2023
- Patients were categorized into two groups: those **who required** perioperative blood transfusions and those **who did not require** perioperative blood transfusions
- Data collection included demographics and comorbidity data, clinical characteristics, and complications within 90 days post-op, categorized by donor site, recipient site, and general complications
- Statistical analysis was conducted to assess significant differences in risk factors and outcomes between transfusion and non-transfusion group

Results

- Among 591 patients, 145 (25%) required a post-operative blood transfusion, with an average of 1.8 units per patient
- No significant differences in BMI, ASA score, or Caprini score were observed between groups
- Patient factors linked to increased risk of transfusion requirement:
 - **Diabetes**
 - **Bleeding disorders**
 - **CAD**
 - **CHF**
 - **Bilateral reconstruction**
- Transfusions were linked to a higher risk of **donor site dehiscence** and **any recipient site complication**, but showed no association with other systemic complications

Conclusions

- Our study identified significant modifiable and non-modifiable patient risk factors that may contribute to the risk of needing peri-operative blood transfusions following DIEP flap breast reconstruction
- Recognizing these risk factors could inform patient management and perioperative planning to minimize transfusion rates
- Blood transfusions are **not benign interventions** and were found to put patients at **increased risk of postoperative complications**
- The association between blood transfusion and donor site dehiscence highlights the need for careful blood management strategies to potentially improve outcomes in DIEP flap reconstructions

References

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