ASSESSING THE RELATIONSHIP BETWEEN BREAST RECONSTRUCTION AND PSYCHIATRIC COMORBIDITIES AMONG BREAST CANCER PATIENTS

Kayvon Jabbari1, MPH; Michael B. Gehring2, MD; Matthew Iorio3, MD; Sarah Tevis4, MD; Gretchen M. Ahrendt3, MD; Julian Winocour2, MD; David Mathes5, MD; Christodoulos Kaoutzanis2, MD
1University of Colorado School of Medicine, 2Department of Plastic and Reconstructive Surgery, University of Colorado Anschutz Medical Center, 3Department of Surgery, University of Colorado Anschutz Medical Center

Background

• Breast cancer patients experience significant changes in psychosocial and sexual health after undergoing mastectomies.
• The risk of complications following breast reconstruction (BR) presents physical and psychological challenges.
• Studies have investigated psychosocial and quality of life changes after BR.
• There is a paucity of information regarding the prevalence of psychiatric disorders following BR.

In this study, we aimed to:

1. Compare postoperative onset of psychiatric disorders among previously healthy patients undergoing different forms of breast reconstruction.
2. Identify the probability of a psychiatric outcome among all breast reconstruction patients based on procedure.

Methods & Experimental Design

Database

• PearDiver, a national database encompassing private payers with 153 million unique patients, was queried from 2010-2020.

Study Population

• Post-mastectomy patients with a history of breast cancer or increased risk of breast cancer
• Patients who underwent implant-based or autologous tissue BR using deep inferior epigastric perforator (DIEP) free flap
• Utilized International Classification Codes 9 and 10 and Current Procedural Terminology codes

Outcome Measurements

• Prevalence of disorder and timing of diagnosis (pre- vs. post-operative)

Analysis

• Binomial outcomes were compared using Pearson’s Chi-square
• Logistic regression was used to identify procedures associated with developing a psychiatric disorder up to 3 years post-operatively
• Statistical analysis was conducted in R (R Core Team, 2014) with significance level set at p<0.05

Table 1. Sub-Analysis of Women Without a Preoperative Psychiatric Diagnosis: Post-Mastectomy Breast Reconstructions and Postoperative Onset of Psychiatric Disorder

<table>
<thead>
<tr>
<th>Type of Surgery</th>
<th>No Preoperative Diagnosis</th>
<th>Postoperative Onset</th>
<th>Postoperative Psychiatric Disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastectomy alone</td>
<td>74,201</td>
<td>22.982 (21.61%)</td>
<td>696 (3.07%)</td>
</tr>
<tr>
<td>Immediate DIEP flap</td>
<td>3,406</td>
<td>952 (27.9%)</td>
<td>23 (3.7%)</td>
</tr>
<tr>
<td>Delayed DIEP flap</td>
<td>1,872</td>
<td>30.0% (9.0%)</td>
<td>240 (13.9%)</td>
</tr>
<tr>
<td>Implant-based reconstruction</td>
<td>40,052</td>
<td>11.072 (27.7%)</td>
<td>240 (53.3%)</td>
</tr>
</tbody>
</table>

DIEP: Deep Inferior Epigastric Perforator

Aim 1. Compare postoperative onset of psychiatric disorders among previously healthy patients undergoing different forms of breast reconstruction.

Mastectomy alone was associated with a significantly increased onset of a psychiatric disorder when compared to all forms of breast reconstructions.

Table 2. Logistic Regression Analysis of All Breast Patients up to 3 Years Postoperatively: Odds Ratios Associated with Breast Reconstruction and Postoperative Psychiatric Diagnosis

<table>
<thead>
<tr>
<th>Type of Surgery</th>
<th>Depressive</th>
<th>Anxiety</th>
<th>Bipolar and related</th>
<th>Trauma- and Stressor-related</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastectomy alone</td>
<td>0.987</td>
<td>0.893**</td>
<td>1.210***</td>
<td>0.75**</td>
</tr>
<tr>
<td>Immediate DIEP flap</td>
<td>1.011</td>
<td>1.018</td>
<td>1.113</td>
<td>1.093</td>
</tr>
<tr>
<td>Delayed DIEP flap</td>
<td>1.279**</td>
<td>1.386**</td>
<td>1.337**</td>
<td>1.322**</td>
</tr>
<tr>
<td>Implant-based reconstruction</td>
<td>1.028</td>
<td>1.152**</td>
<td>1.114*</td>
<td>1.064*</td>
</tr>
</tbody>
</table>

Dotted lines indicate time of diagnosis, while solid lines indicate postoperative periods.

Aim 2. Identify the probability of a psychiatric outcome among all breast reconstruction patients based on procedure.

Delayed DIEP flap & implant-based reconstructions were associated with an increased probability of a postoperative anxiety and trauma- and stressor-related diagnosis, while mastectomy alone was protective against these disorders.

Conclusions & Future Directions

1. Sub-analysis trends were supported by primary outcomes among all post-mastectomy patients.
2. Results are possibly suggestive of the inherent challenges faced by patients undergoing complex breast reconstruction.
3. Further research is necessary to better understand the possible interplay between breast reconstruction outcomes and psychiatric comorbidities.

Acknowledgements

We would like to thank the University of Colorado Department of Surgery as well as the Division of Plastic and Reconstructive Surgery. Please contact me with any questions: kayvon.jabbari@cuanschutz.edu

Figure 1. Of the 204,860 post-mastectomy cancer patients, 111,804 underwent mastectomy alone while 91,776 underwent either DIEP free flap or implant-based reconstruction. Representative flow charts of psychiatric onset among previously healthy patients undergoing mastectomy alone (A), immediate DIEP flap (B), delayed DIEP flap (C), and implant-based reconstruction (D). Dotted lines indicate time of surgery and delineate the preoperative (left of line) versus postoperative (right of line) periods.