

01 Impact of race and socioeconomic status on complications in pelvic organ prolapse repair



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OBJECTIVES: The objective of the study was to investigate the impact of race and socioeconomic status, as reflected by insurance type, on pelvic organ prolapse (POP) procedures using the National Inpatient Database (NIS).

MATERIALS AND METHODS: NIS was queried using ICD-9/10 codes for patients aged >18 years undergoing POP repair. Demographic information, Elixhauser comorbidity index (ECI), insurance status, and postoperative complications were extracted. Race and ethnicity are reported as one variable by NIS. Stepwise multivariate weighted logistic regression using the discharge weights from NIS were constructed on binary outcomes. % Incidence, odds ratio (OR) and 95% confidence intervals (CI) are reported. Complications, such as organ injury and wound infection, with <1% incidence were excluded.

RESULTS: 192,400 POP repair patients were analyzed. 130,022 (67.5%) were white, 10,561 (5.5%) were African American, 21,915 (11.4%) were Hispanic, and 9,985 (5.2%) were other races. African American, Hispanic, and other races had higher odds of developing UTI, sepsis, and acute renal failure compared to whites (Table 1). African Americans and Hispanics had lower odds of developing postoperative hemorrhage or abdominopelvic complications compared to white patients (Table 1). Other races had lower odds of postoperative hemorrhage and no difference in abdominopelvic complications compared to whites (Table 1). Privately insured patients had lower odds of UTI, sepsis, acute renal failure, and hemorrhage compared to all other insurance types (Table 2).

CONCLUSION: Race and insurance status impact a patient's risk for sustaining certain postoperative complications. Even after controlling for age and ECI, non-white patients were more likely to have UTIs, sepsis, and acute renal failure. Patients with private insurance were less likely to have postoperative complications. The study is limited by the majority of the population being white patients and the generally rare incidence of complications. Continued efforts are needed to address the cause of health disparities and eliminate them from medical care.

Table 1: Stepwise multivariate regression of race vs complications

Complication	African American* OR (95% CI) n=10,561	Hispanic* OR (95% CI) n=21,915	Other (Asian, Native American, Other)* OR (95% CI) n=9,985
UTI	1.13 (1.09-1.18)	1.14 (1.10-1.18)	1.12 (1.07-1.17)
Sepsis	1.16 (1.07-1.25)	1.25 (1.17-1.33)	1.36 (1.25-1.48)
Acute Renal Failure	2.02 (1.94-2.11)	1.12 (1.07-1.18)	1.28 (1.20-1.35)
Hemorrhage	0.77 (0.71-0.84)	0.75 (0.70-0.80)	0.91 (0.84-0.99)
Abdominopelvic complication	0.86 (0.81-0.92)	0.83 (0.79-0.88)	1 (0.94-1.06)

*White race (n=130,022) is the reference

Table 2: Stepwise multivariate regression of insurance type vs. complications

Complication	Medicaid* OR (95% CI)	Private* OR (95% CI)	Self-Pay* OR (95% CI)	No charge* OR (95% CI)
UTI	1.15 (1.45-1.58)	0.70 (0.68-0.72)	1.73 (1.60-1.86)	1.04 (0.84-1.29)
Sepsis	1.20 (1.09-1.31)	0.59 (0.55-0.63)	1.96 (1.70-2.25)	2.18 (1.55-3.07)
Acute Renal Failure	1.57 (1.48-1.67)	0.67 (0.64-0.71)	2.06 (1.87-2.27)	1.23 (0.91-1.66)
Hemorrhage	0.87 (0.80-0.94)	0.76 (0.72-0.81)	0.76 (0.65-0.88)	0.77 (0.55-1.07)

*Medicare is the reference.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Sarah K. Rozycki: Nothing to disclose; Emily Rutledge: Nothing to disclose; Tariq Nisar: Nothing to disclose; Ghanshyam S. Yadav: Nothing to disclose; Tristi Muir: Nothing to disclose; Danielle Antosh: Nothing to disclose.

02 Perioperative complications after reconstructive surgery for pelvic organ prolapse in patients with diabetes: analysis of a national database



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OBJECTIVES: The aim of this study was to evaluate the effect of diabetes subtypes (insulin-dependent versus non-insulin dependent) on rates of 30-day postoperative wound and overall complications following reconstructive surgery for pelvic organ prolapse.

MATERIALS AND METHODS: This is a retrospective cohort analysis of the National Surgical Quality Improvement Program (NSQIP) using data collected between 2011 and 2019. We selected patients using current procedural terminology codes for pelvic organ prolapse repair. Cases were excluded for and pre-existing malignancy, sepsis and wound infection. We defined three cohorts by diabetes status: no diabetes (NDM), non-insulin dependent diabetes (NIDDM), and insulin-dependent diabetes (IDDM). Procedures were grouped by main approach: vaginal, abdominal or laparoscopic. Complication rates were compared between the three cohorts and surgical approaches. Complications were categorized as wound complications (superficial, deep and organ space surgical site infections, and wound disruptions), other infectious complications (UTI, sepsis, septic shock, and pneumonia), pulmonary/vascular complications and cardiovascular complications. Readmission and reoperation rates were also assessed. Multivariable logistic regression analyses were performed to elucidate additional risk factors associated with postoperative complications.

RESULTS: We identified 57,848 patients. The majority were white (90%), non-smokers (90%) with a median age of 61 years old and BMI of 27.6 kg/m². Most prolapse repairs were done by vaginal approach (87%). The rates of wound complications, pulmonary, cardiovascular complications, and composite of all complications were significantly higher in the IDDM group compared to the NDM and NIDDM groups (wound: 2.2% vs. [1.3% and 1.2%]; pulmonary/cardiovascular: 2.7% vs. [1.2% and 1.5%]; composite: 10.0% vs. [6.4% and 7.0%], p<0.017 on all post hoc analyses). In particular, the rates of organ space infections (OSSI) and myocardial infarctions (MI) were higher in the IDDM group compared to NDM and NIDDM groups (OSSI: 0.9% vs. 0.4% and 0.4%, p = 0.03; MI:

0.4%, 0.1% and 0.2%, $p = 0.0006$). There were no differences in other infectious complications. Surgical route did not significantly affect complication rates. The rate of readmission for the IDDM cohort was 4.6% vs. 2.3% and 2.5% for the NDM and NIDDM groups respectively ($p < 0.0001$). On multivariable regression analysis of composite overall complications and wound complications, diabetes was not significantly associated with higher complication rates ($p = 0.10$).

CONCLUSION: Although there was a higher rate of complications and readmissions in the IDDM group, regression analysis revealed that these differences were not statistically significant when adjusting for demographic and clinical factors.

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03 The impact of postoperative pain and pain management following sacrospinous ligament fixation on trial of void failure



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OBJECTIVES: Postoperative urinary retention (POUR) and the need to be discharged with a urinary catheter after trial of void (TOV) failure are significant sources of distress for patients. These patients may also be at higher risk of postoperative urinary tract infections. Concomitant midurethral sling, anterior repair, and intraoperative blood loss have been shown to increase the risk of TOV failure following surgery for pelvic organ prolapse. Postoperative pain has not been previously investigated as it relates to TOV failure. This study assessed whether pain and pain management affected TOV failure in patients who underwent sacrospinous ligament fixation (SSLF). We hypothesized that patients with greater postoperative pain are more likely to have POUR.

MATERIALS AND METHODS: This was a retrospective cohort study of patients who underwent SSLF from January 2014 to September 2021 at five hospitals within a health system. Patients were identified using CPT code 57282. They were included if they were over the age of 18 and underwent SSLF; and were excluded if they did not undergo a trial of void on postoperative day 1 and did not have pain scores or pain medications recorded electronically. Demographics and intraoperative characteristics were collected based on previous studies. Our primary outcome was the impact of mean and highest verbal pain score on TOV failure. Secondary outcomes were the impact of oral morphine equivalents, acetaminophen and non-steroidal anti-inflammatory drugs (NSAIDs) per hour, time from last pain medication, and whether pain medication was scheduled on TOV failure. Statistical significance was set at a p -value of 0.05. Statistical analyses were completed using Mann-Whitney U and Fisher's Exact tests.

RESULTS: Two hundred and eighteen (218) patients were identified. Of those, 29 were duplicates and 47 met exclusion criteria. One hundred and forty-two (142) patients were included in the analysis, of which 26.8% failed TOV on postoperative day 1. Age and concomitant hysterectomy were associated with TOV failure ($p=0.05$ and $p=0.003$). Other demographic and intraoperative

factors were not significantly different. Mean and highest verbal pain scores were not significantly different (mean: 3.00 vs. 2.70, $p=0.24$; highest: 6.00 vs. 6.00, $p=0.36$). NSAID use per hour was higher in patients who passed their TOV (60.15 vs. 0.0, $p=0.03$), and patients whose NSAIDs were scheduled were more likely to pass their TOV versus those whose NSAIDs were given as needed or were not given at all ($p=0.02$). All other secondary outcomes were not significantly different.

CONCLUSION: In patients who underwent SSLF, there was no difference in pain scores between the two groups. Scheduled NSAID administration and NSAIDs consumed per hour postoperatively were significantly associated with higher TOV pass rates. This suggests that the anti-inflammatory properties of NSAIDs may help decrease POUR.

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04 Optimization of suture attachment for fascia sacral colpopexy using an animal model



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OBJECTIVES: The objective of this study is to determine the optimum method of fascial attachment to reduce risk of suture pull-through with failure of the supportive graft. We hypothesized that the risk of suture pull-through will be reduced by

1. Use of a triple knot or barbed suture compared to single interrupted sutures alone
2. Addition of a Vicryl mesh overlay compared to fascia without Vicryl mesh overlay
3. Use of fresh tissue specimens compared to tissue which has been frozen and thawed

MATERIALS AND METHODS: Bovine fascia strips 8×2cm were sutured together in an overlapping fashion with PDS sutures or Stratafix Spiral PD0 barbed bidirectional sutures. For the comparison of frozen versus fresh specimens, the samples were then frozen for 48 hours then thawed for 12 hours.

At least 2 cm on each side of the tissues were left free past the overlap, to enable the pneumatic grips of the tensile-strength testing device to hold. The suture pullout strength of the prepared samples was tested using an Instron 5544. The tensile tests were performed with an extension rate of 20mm/minute, and data was collected using Bluehill software. A one-way ANOVA test was performed to determine differences between the means of three or more independent groups and students t-test use to find difference between the means of two groups.

Preliminary data indicates a triple knot at least doubles the tensile strength. Mean 15 Newton (N) max load for single suture configuration versus 40-60 N max load for triple hitch. Assuming a 2-sided α of .05, in order to have 90% power to detect a 50% difference in the mean between groups, a sample size of 6 in each comparison was needed.

RESULTS: The mean maximum load for the single suture attachment was 25N, compared to 84N and 244 N for the triple knot and barbed suture attachments respectively (P -value 0.0003). The addition of a Vicryl mesh overlay did not increase tensile strength. Freezing and