

Risk Factors for Complications after Total Hip Arthroplasty in the California Joint Replacement Registry

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Introduction

- Comparison of outcomes after total hip arthroplasty (THA) depends on an accurate risk adjustment model that accounts for patient comorbidities
- This study aims to identify independent risk factors for complication after THA using data from the California Joint Replacement Registry (CJRR)

Methods

- 5,560 primary THA procedures were performed in 26 hospitals in the CJRR between 2011-2015.
- 90 day complications were identified by ICD-9 codes, and a multivariable logistic risk model for postoperative complication was used to identify patient risk factors as measured by odds ratio (OR)

Complications

Postoperative Arrhythmia	Acute Renal Failure
Congestive Heart Failure	Myocardial Infarction
Fracture	Dislocation
Wound Infection	Deep Venous Thrombosis
Pulmonary Embolus	Excessive Bleeding
Nerve Injury	Death

Patient Risk Factors

Age	Gender
Race	Bilateral Procedures
American Society of Anesthesiologists Class	Diabetes
History of Myocardial Infarction (MI)	Coronary Artery Disease
Congestive Heart Failure (CHF)	Peripheral Artery Disease
Chronic Lung Disease	History of Venous Thromboembolism

- The c statistic of the model was 0.648 and chi-squared value was 5.08.
- Hosmer and Lemeshow Goodness of Fit Test was calculated to determine the ability of the risk model to predict complications.

Results

Patient Risk Factors Evaluated	Description	Odds Ratio (OR)	OR: 95% Confidence Limits	P value
Age	For each additional year	1.01	1.00 1.02	0.087
Gender	Male vs. Female	1.17	0.93 1.48	0.177
Race	White vs. Other	1.05	0.83 1.31	0.706
Bilateral Procedures	Bilateral vs. Unilateral	0.73	0.44 1.21	0.218
ASA Class	3 or 4 vs. 1 or 2	2.46	1.90 3.18	<.0001
Diabetes	Yes vs. No	0.87	0.57 1.32	0.516
History of Myocardial Infarction	Yes vs. No	1.35	0.74 2.43	0.327
Coronary Artery Disease	Yes vs. No	0.98	0.64 1.52	0.939
Congestive Heart Failure	Yes vs. No	2.75	1.64 4.60	0.001
Peripheral Artery Disease	Yes vs. No	0.86	0.41 1.79	0.678
Chronic Lung Disease	Yes vs. No	0.98	0.67 1.44	0.908
History of Venous Thromboembolism	Yes vs. No	1.76	0.94 3.30	0.078

- Overall observed 90 day complication rate was 6.03%
- Range of observed complication rates was 0.00% to 15.38%.
- No significant correlation between age, gender, race, bilateral procedures, diabetes, history of myocardial infarction, coronary artery disease, peripheral artery disease, chronic lung disease, and history of venous thromboembolism was found.

Conclusion

- American Society of Anesthesiologists class of 3 or 4 and congestive heart failure are independent risk factors for complication after THA in the CJRR

References

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Disclosures

- James Huddleston – Chair of CJRR
- Kevin Bozic – Founder of CJRR

