

Surgeon Volume and its Relationship to Revision Risk by Fixation Method for Hip Arthroplasty Undertaken for Hip Fracture

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INTRODUCTION: Worldwide registry data has strongly suggested that cemented fixation has a lower revision risk compared to cementless fixation for hemiarthroplasty undertaken for hip fracture. The purpose of this study is to compare the difference in revision risk between cemented and cementless hemiarthroplasty, stratified by surgeon experience.

METHODS: This is a large Canadian Joint Registry Study including 68,447 patients who underwent a hip hemiarthroplasty for fracture between 2012 and 2020. Surgeons were classified as either high volume (>50 cases/year) and low volume (<50 cases/year). The relationship between surgeon volume, fixation method, and revision risk was examined using hazard ratios adjusted for age and sex.

RESULTS: For high volume surgeons, cementless fixation had a higher revision risk than cemented fixation, HR 1.29 (1.05-1.56), $p=0.017$. This pattern was similar for low volume surgeons, HR 1.37 (1.11-1.70) $p=0.004$. We could not detect a difference in revision risk for cemented fixation between low volume and high volume surgeons; at 0-1.5 years the HR was 0.96 (0.72-1.28) $p=0.786$, and at 1.5+ years the HR was 1.61 (0.83-3.11) $p=0.159$. Similarly, we could not detect a difference in revision risk for cementless fixation between low volume and high volume surgeons, HR 1.11 (0.96-1.29) $p=0.161$.

DISCUSSION AND CONCLUSION: Compared to cementless fixation, cemented fixation appears to have a lower revision risk regardless of surgeon volume. The results of this study should help to guide surgeons that no matter the level of experience, using cemented hemiarthroplasty fixation for acute femoral neck fracture has the lowest revision risk.