

Posterolateral or Direct Lateral Surgical Approach for Hemiarthroplasty After a Hip Fracture

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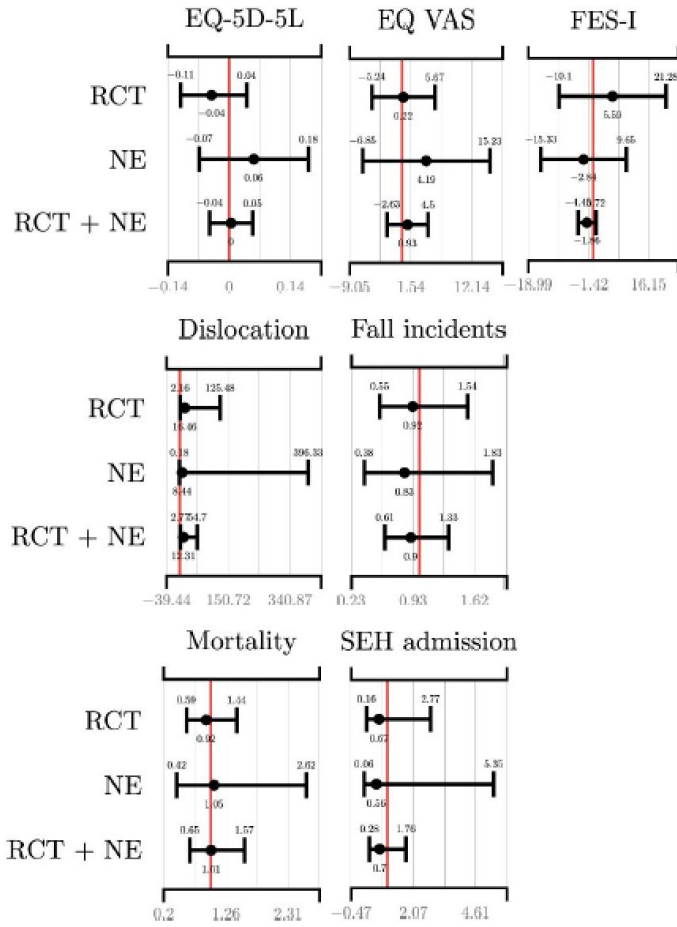
Purpose: The posterolateral approach (PLA) and direct lateral approach (DLA) are the most frequently used surgical approaches for hemiarthroplasties after hip fractures. It is unknown which approach is most beneficial regarding (cost-) effectiveness and quality of life. Natural experiments (NEs) are observational studies with group assignment resembling random allocation. These could be a valuable alternative to the traditional randomized controlled trial (RCT). Our objectives were (1) to compare the effectiveness of the PLA and DLA for hemiarthroplasty after hip fracture and (2) to compare and fuse the data collected in the RCT and NE.

Methods: We performed a multicenter RCT comparing DLA and PLA, with a NE alongside. The primary outcome was health-related quality of life 6 months after surgery, quantified with the EuroQol 5-Dimensions questionnaire (EQ-5D-5L). Secondary outcomes included dislocations, (fear of) falling, activity of daily living, pain, and reoperations. To improve generalizability, we performed a novel technique for data fusion of the RCT and NE.

Results: A total of 843 patients participated; 555 in the RCT (283 DLA, 272 PLA) and 288 in the NE (172 DLA and 116 PLA). In the RCT, EQ-5D-5L utility scores at 6 months were 0.50 (95% confidence interval [CI] 0.45–0.55) after DLA and 0.49 (95% CI 0.44–0.54) after PLA, with 77% completeness. The between-group difference was neither statistically nor clinically significant (–0.04, 95% CI –0.11–0.04). Most secondary outcomes were comparable between groups, but PLA resulted in more dislocations (5.5%) than DLA (0.4%) and there were more reoperations (N = 35) after PLA than DLA (N = 18). The NE resulted in EQ-5D-5L utility scores of 0.53 (95% CI 0.47–0.60) for DLA and 0.57 (95% CI, 0.50–0.64) for PLA (group effect 0.06, 95% CI –0.07–0.18), with 1.2% and 5.3% dislocations, respectively. Data fusion resulted in an effect size of 0.00 (95% CI –0.04–0.05) for the EQ-5D-5L and an odds ratio of 12.31 (95% CI 2.77–54.7) for suffering a dislocation after PLA.

Conclusion: Among patients treated with a cemented hemiarthroplasty for an acute femoral neck fracture, PLA did not result in a better quality of life than DLA. Rates of dislocation and reoperation were higher after PLA. Randomized (RCT) and pseudo-randomized (NE) data yielded similar outcomes, strengthening these findings.

Fig. 4, Fused results of primary and secondary outcomes



*effect sizes: EQ-5D-5L, EQ VAS, FES-I, Odds Ratio: Dislocation, Fall incidents, Mortality, SEH admission

The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device they wish to use in clinical practice.