Paper #51

A Large Randomized Clinical Trial of Direct Anterior and Mini-Posterior THA: Which Provides Faster Functional Recovery?

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Introduction: This randomized clinical trial was designed to determine if patients recovered faster after DAA than MPA as measured by: (1) attainment of early functional milestones, (2) advanced activity-monitors employed in the at-home setting, and (3) in-hospital outcomes.

Methods: One hundred patients were randomized. A novel methodology was used to eliminate the learning-curve effect: one high-volume surgeon performed all of the DAA and three high-volume surgeons performed the MPA THAs, regardless of who the patients' initial consulting surgeon was. Groups did not differ in mean age (65.4 years), sex (52% female), or mean body mass index (mean 29.2 kg/m2) (all p >0.40). In-hospital data and functional results from a milestone diary were recorded. Each patient's activity was monitored in the home environment over three-day periods pre-op, at 2 weeks, 8 weeks, and one year with 5 wearable activity-monitoring sensors with tri-axial MEMS accelerometers & custom analysis algorithms.

Results: Early functional recovery was faster after DAA compared to MPA as measured by time to: discontinue walker (10 vs. 14.5 days, p=0.01), discontinue all gait aids (18 vs 23 days, p=0.04), discontinue opioids (9 vs. 14 days, p=0.05), ascend stairs with gait aid (5 vs. 10 days, p<0.01), and to walk 6 blocks (20.5 vs. 26.0 days, p=0.05). Early functional recovery was faster after DAA compared to MPA as measured by advanced activity-monitoring at two weeks postoperatively: DAA patients walked more steps (3897 +/- 2258 steps vs. 2235 +/-1688; p=0.01) and spent a greater portion of each day active than did MPA patients (10.5% +/- 4.6 vs. 6.9% +/- 3.7; p=0.01).

Conclusions: Both the direct anterior approach and mini-posterior approach provided excellent early postoperative recovery. The DAA patients had objectively faster recovery with slightly shorter times to achieve milestones of function and as measured by advanced, quantitative activity monitoring at 2 weeks postoperatively.

Notes