Preoperative Hip Pain Duration Predicts Delayed Achievement of Clinically Significant Outcomes Following Hip Arthroscopy for Femoroacetabular Impingement Syndrome

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INTRODUCTION:
Patients with preoperative hip pain ≥ 2 years prior to hip arthroscopy for femoroacetabular syndrome (FAIS) have been shown to achieve inferior short-term and mid-term outcomes compared to patients with shorter pain durations; although, limited literature evaluates the time to achievement of clinically significant outcomes (CSOs) in this population. The purpose of this study is to compare time to achievement of CSOs following hip arthroscopy for FAIS in patients with and without prolonged preoperative pain and to identify independent predictors of delayed CSO achievement.

METHODS:
Patients undergoing primary hip arthroscopy for FAIS with complete 6-month, 1-year, and 2-year Hip Outcome Score Activities of Daily Living (HOS-ADL) and Sports Subscale (HOS-SS) between January 2012 and July 2019 were identified. Patients with Prolonged Hip Pain (preoperative hip pain duration ≥ 2 years) were propensity matched to a Control group (duration < 2 years), controlling for age, sex, and BMI. Time to achievement of Minimal Clinically Important Difference (MCID) and Patient Acceptable Symptom State (PASS) were compared between groups using Kaplan-Meier survival analysis. Multivariate cox regressions considering age, sex, BMI, pain duration, activity level, and chondral status were used to identify independent predictors of delayed CSO achievement.

RESULTS:
One hundred seventy-nine Prolonged Hip Pain patients were matched to 179 Control patients of similar age, sex, and BMI ($p \geq 0.488$) with similar baseline HOS-ADL and HOS-SS scores ($p \geq 0.786$). The Prolonged Hip Pain group showed delayed achievement of MCID and PASS for both HOS-ADL and HOS-SS on Kaplan-Meier analysis ($p \leq 0.020$). On multivariate cox regressions, hip pain duration ≥ 2 years was shown to be an independent predictor of delayed CSO achievement with hazard ratios (HR) ranging 1.32-1.56 ($p \leq 0.029$). Additional independent predictors of delayed CSO achievement included increasing age, increasing BMI, female sex, activity status, and high-grade chondral defects (HR: 1.01-4.89, $p \leq 0.045$).

DISCUSSION AND CONCLUSION:
Prolonged pain duration prior to hip arthroscopy for FAIS is associated with inferior short-term and mid-term outcomes in most prior literature. Findings from our study demonstrated that patients with a preoperative symptom duration ≥ 2 years showed inferior 2-year HOS-ADL and HOS-SS scores, alongside inferior 2-year MCID and PASS achievement, compared to patients with a shorter symptom duration. Our study revealed a time-dependent delay in CSO achievement in patients with preoperative pain duration ≥ 2 years, as patients with prolonged pain duration showed significantly delayed MCID and PASS achievement for both HOS-ADL and HOS-SS on Kaplan-Meier analysis. In addition to Kaplan-Meier analysis, our study revealed through multivariate cox regressions controlling for age, sex, BMI, and physical activity that the presence of preoperative pain duration ≥ 2 years was a significant independent predictor of delayed MCID and PASS achievement. When present, prolonged pain duration conveyed hazard ratios for delayed MCID achievement ranging from 1.33 to 1.37 and hazard ratios for delayed PASS achievement ranging from 1.47 to 1.56.
In conclusion, findings from this study demonstrate that preoperative hip pain duration ≥ 2 years is an independent predictor of delayed clinically significant outcome achievement following primary hip arthroscopy for FAIS.