A Clinical Decision Support Tool to Predict the Risk of Failure in Patients with Femoroacetabular Impingement Undergoing Hip Preservation Surgery

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A Clinical Decision Support Tool to Predict the Risk of Failure in Patients with Femoroacetabular Impingement Undergoing Hip Preservation Surgery

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INTRODUCTION

In modern orthopaedics, risk prediction scores can help discriminate between ideal and poor candidates for a specific therapeutic intervention. We consider these tools useful during the process of shared medical decision-making. To our knowledge, such a strategy has never been explored in the field of hip preservation surgery.

The aim of our study is to generate a clinical decision support tool to predict risk of failure after hip preservation surgery among patients with femoroacetabular impingement (FAI).

MATERIALS AND METHODS

Data from 269 patients with clinical and radiological diagnosis of FAI (as evaluated by two independent observers) and no evidence of radiographic osteoarthritis were analyzed (Table 1). At a mean follow-up of 1.9 years after mini-open femoroacetabular osteoplasty (6 months to 6.6 years), we categorized the outcome of surgery as success (modified Harris hip score (HHS) >80 and patient satisfaction), or failure (modified HHS <80, conversion to total hip arthroplasty (THA), or revision hip-preserving procedures). A regression analysis model including 23 preoperative variables (Table 2) was used to identify the independent predictors of failure (p<0.05), which were then combined to produce a risk prediction score that generates case-specific guidance during shared decision-making.

RESULTS

Data revealed that 172 patients were considered successful (65.2%) and 92 (34.8%) were considered to have failed. Age, body mass index, characteristics of hip pain (intermittent versus constant), duration of symptoms (less or more than 12 months), and the use of any walking assistance were predictors of failure in our logistic regression model. A scoring system for predicting the occurrence of failure combining these 5 variables was created, which was able to stratify the risk of failure into a range from 10% to 80% (Tables 3, 4). The goodness of fit of our predictive score was evaluated using C-statistics, presenting a value of 0.729.

DISCUSSION

Because of its reasonable predictive capacities, our scoring system can be helpful in assessing individual risks of failure during the short and mid-term among patients with FAI undergoing hip preservation surgery. Consequently, it can be applicable during the process of preoperative shared medical decision-making in the fast-growing field of orthopaedics. We believe that the usefulness of our tool relies on its simplicity and anamnestic nature.

REFERENCES