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Central sensitization is a risk factor for wound complications after primary total knee arthroplasty

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Abstract

Purpose: Postoperative wound complication is a significant risk factor for subsequent deep periprosthetic joint infection after total knee arthroplasty (TKA). Central sensitization is an abnormal enhancement of pain mechanism involving the central nervous system. Although psychological disorder is widely considered as a risk factor, the relationship between central sensitization and wound complication is currently unclear. Therefore, the purpose of this study was to investigate whether central sensitization was associated with high wound complication rate after primary TKA.

Materials and methods: Between January and June 2016, 161 patients undergoing unilateral TKA were prospectively divided into two groups based on central sensitization inventory score of 40 points after excluding cases with known risk factors such as physical comorbidities, health-related behaviors, and psychological disorders. Group 1 consisted of 112 patients (112 knees) whose central sensitization inventory score was < 40 points and group 2 consisted of 49 patients (49 knees) whose central sensitization inventory score was ≥ 40 points. Wound complications were defined as wound dehiscence, suture granuloma, prolonged wound oozing after postoperative day 5, significant hematoma formation, or surgical site infection recorded during the initial 90-day postoperative period. Demographic data, visual analog scale (VAS), central sensitization inventory score, and wound complications were compared between the two groups.

Results: Wound complications developed in 3 (2.7%) knees in group 1 and 14 (28.6%) knees in group 2 ($p < 0.001$). Multivariate logistic regression analysis showed that the odds of postoperative wound complications were increased 15.7 times in patients with central sensitization inventory score ≥ 40 (95% CI 4.1-60.0, $p < 0.001$).

Conclusion: Central sensitization is a risk factor for the development of postoperative wound complication after primary TKA.

Level of evidence: II.

Keywords: Central sensitization; Central sensitization inventory; Risk factor; Total knee arthroplasty; Wound complication.

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