



# Effect of Pregabalin on Patient's Pain Following Total Knee Arthroplasty: A Systematic Review and Meta-Analysis of Randomized Clinical Trials

Amir-Mohammad Asgari\*, Alireza Hosseini Nejad,  
Mohaddeseh Abbasi, Mehrnoosh Gholami

Student Research Committee, Faculty of Medicine, Shahed University, Tehran, Iran

## ABSTRACT

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**\*Corresponding Author:**

Student Research Committee,  
Faculty of Medicine, Shahed  
University, Tehran, Iran

**Introduction:** Total knee arthroplasty (TKA) is a standard surgical procedure; however, it is often associated with significant postoperative pain due to the extensive incision and prolonged duration of the operation. While advancements in surgical techniques and perioperative care may help alleviate pain, many patients undergoing TKA continue to experience severe discomfort. The visual analogue scale (VAS) is commonly employed to assess the effectiveness of multimodal analgesia in managing postoperative pain. However, despite the implementation of multimodal strategies, some patients may still suffer from intractable postoperative pain. The main objective of this study was to analyze the results of randomized controlled trials to assess the efficacy of pregabalin in reducing postoperative pain following TKA and to further explore the potential benefits of pregabalin in pain management within this context.

**Search Strategy:** A search was conducted through PubMed using the keywords "pregabalin" OR "3 isobutyl GABA" [Title] OR "3-(aminomethyl)-5-methyl hexanoic acid" [Title] OR "Lyrica" [Title] AND "total knee arthroplasty" [Title] OR "total knee replacement" [Title], as well as through WOS using the keywords "pregabalin" OR "3 isobutyl GABA" OR "3-(aminomethyl)-5-methyl hexanoic acid" OR "Lyrica" [Title] AND "total knee arthroplasty" OR "total knee replacement" [Title].

**Results:** After removing duplicates, 33 articles were screened based on their titles and abstracts. Articles published before 2017 were excluded, and three met our inclusion criteria. Two articles were included in a random effects meta-analysis using STATA software. The quality of the studies was assessed using the Rob2 tool, and all studies demonstrated a low risk of bias. The results of VAS scores at 12, 24, and 48 hours were included in the analysis. The overall effects of pregabalin on VAS score at 12, 24, and 48 h were -0.38 ( $p = 0.001$ ), 0.71 ( $p = 0.001$ ), and -0.08 ( $p = 0.70$ ), respectively.

**Conclusion and Discussion:** In clinical settings, the VAS is often used to assess the effectiveness of pregabalin in relieving postoperative pain. This study measured VAS scores at 12, 24, and 48 hours postoperatively to evaluate postoperative pain. Our findings show that pregabalin does not significantly reduce VAS scores at any point compared to the control group. This comprehensive analysis of RCTs demonstrates that pregabalin is not effective in reducing postoperative pain after TKA.

**Citation:**

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