A Randomized Controlled Trial to Compare Peripherally Inserted Central Catheter Tunnel Lengths in Adult Patients With Cancer

Jia Li, MS, Zeyin Hu, MS, Xiling Lin, BS, Weihua Huang, BS, Chunli Huang, BS, Jieliin Luo, BS, Lihua Li, BS, Xinghong Zhang, BS, and Huiying Qin, MS

BACKGROUND: Evidence is insufficient on the effect of tunnel lengths on tunneled peripherally inserted central catheter (PICC) placement in adult patients with cancer.

OBJECTIVES: The primary objective was to explore whether there is an optimal PICC tunnel length to reduce the risk of PICC-related complications. The secondary objective was to compare patients' pain and comfort levels during catheter placement with different tunnel lengths.

METHODS: Two hundred patients were randomly assigned to groups based on PICC tunnel length. Data collected included baseline characteristics, catheter-related characteristics, PICC-related complications, and patients' pain and comfort levels.

FINDINGS: Patients with 4 cm, 5 cm, and 6 cm PICC tunnel lengths had a longer catheter dwell time and fewer PICC-related complications. No significant differences were found among all groups regarding patients' pain and comfort levels. The results suggest that a tunneled PICC is safe and effective. A tunnel length longer than 4 cm is recommended for tunneled PICC placement.

KEYWORDS
peripherally inserted central catheter; tunnel length; catheter dwell time; cancer