**Abstract:**

Background: As the vein structure gets damaged in patients receiving chemotherapy treatment, placement of peripheral intravenous catheter becomes difficult. To increase the success of peripheral intravenous catheter placement, a vein imaging device and fist clenching can be used.

Objective: The aim of this study was to determine the effect of using a vein imaging device or fist clenching on the determination of an appropriate vein and successful catheter placement time in adult patients receiving chemotherapy.

Methods: One hundred thirty-five patients receiving chemotherapy were randomly assigned to either the vascular imaging device group (n = 45), the fist clenching group (n = 45), or the control group (n = 45). In the vascular imaging group, a vascular imaging device was used to determine the appropriate vein; in the fist clenching group, the patients were asked to open and close their palms to determine the appropriate vein; and in the control group, no interventions except for the process steps were applied and the same nurse carried out the catheter insertion.

Results: The durations of determining the appropriate vein and successful peripheral intravenous catheter insertion were shorter in the device group at a significant level (P < .05) compared with the control group. The satisfaction levels of the patients and the nurse were higher in the device group at a significant level (P < .05) compared with the control group.

Conclusion: The vascular imaging device was effective in determining the proper vein and in successful intravenous catheter insertion time in patients who were receiving chemotherapy.

Implications for practice: The use of vein imaging device will have positive results for patients and nurses.

**Reference:**