



This study examined catheter shape just after removal to evaluate the causes of catheter failure according to site” Murayama et al (2018).

Abstract:

The risk of peripheral intravenous catheter failure varies according to the insertion site. This study examined catheter shape just after removal to evaluate the causes of catheter failure according to site. This study was a secondary analysis of previous study data. Our observational study was conducted during a 6-month period at The University of Tokyo Hospital. Participants were hospitalized adults who received infusion therapy via a short peripheral catheter. We acquired ultrasound images of blood vessels and surrounding tissues at the catheter insertion site before catheter removal and clinical images of the removed catheters. We analyzed 184 catheters from 142 participants. There were no significant differences in the catheter failure rate (29.9%) among insertion sites. Curvature in the middle of the catheter was present in 9.2% of cases; the median bend angle at the catheter base was 9.1° (range: 0.0°-68.3°). The bend angle of catheters inserted in the upper arm was significantly greater than of catheters in the forearm ($p = 0.013$). Catheter curvature was related to catheter failure (14.8% of failed catheters had curvature; $p = 0.035$) and occlusion (35.3% of occluded catheters had curvature; $p = 0.008$) in upper arm and forearm placements. The median distance from the elbow to the insertion site was shorter for failed catheters than for surviving catheters. To prevent catheter failure, especially occlusion resulting from catheter curvature, a catheter should be inserted at an appropriate insertion

site far from the antecubital fossa.

Full Text

Reference:

Murayama, R., Takahashi, T., Tanabe, H., Yabunaka, K., Oe, M., Komiyama, C. and Sanada, H. (2018) Exploring the causes of peripheral intravenous catheter failure based on shape of catheters removed from various insertion sites. *Drug Discoveries & Therapeutics*. 12(3), p.170-177.

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