

Inter-rater agreement for phlebitis assessment signs/symptoms and scales is low. This likely contributes to the high degree of variability in phlebitis rates in literature” Marsh et al (2015).

Reference:

Marsh, N., Mihala, G., Ray-Barruel, G., Webster, J., Wallis, M.C. and Rickard, C.M. (2015) Inter-rater agreement on PIVC-associated phlebitis signs, symptoms and scales. Journal of Evaluation in Clinical Practice. July 17th. .

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Abstract:

RATIONALE, AIMS AND OBJECTIVES: Many peripheral intravenous catheter (PIVC) infusion phlebitis scales and definitions are used internationally, although no existing scale has demonstrated comprehensive reliability and validity. We examined inter-rater agreement between registered nurses on signs, symptoms and scales commonly used in phlebitis assessment.

METHODS: Seven PIVC-associated phlebitis signs/symptoms (pain, tenderness, swelling, erythema, palpable venous cord, purulent discharge and warmth) were observed daily by two raters (a research nurse and registered nurse). These data were modelled into phlebitis scores using 10 different tools. Proportions of agreement (e.g. positive, negative), observed and expected agreements, Cohen’s kappa, the maximum achievable kappa, prevalence- and bias-adjusted kappa were calculated.

RESULTS: Two hundred ten patients were recruited across three hospitals, with 247 sets of paired observations undertaken. The second rater was blinded to the first’s findings. The Catney and Rittenberg scales were the most sensitive (phlebitis in >20% of observations), whereas the Curran, Lanbeck and Rickard scales were the most restrictive ($\leq 2\%$ phlebitis). Only tenderness and the Catney (one of pain, tenderness, erythema or palpable cord) and Rittenberg scales (one of erythema, swelling, tenderness or pain) had acceptable (more than two-thirds, 66.7%) levels of inter-rater agreement.

CONCLUSIONS: Inter-rater agreement for phlebitis assessment signs/symptoms and scales



is low. This likely contributes to the high degree of variability in phlebitis rates in literature. We recommend further research into assessment of infrequent signs/symptoms and the Catney or Rittenberg scales. New approaches to evaluating vein irritation that are valid, reliable and based on their ability to predict complications need exploration.

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