Abstract:

Introduction: Difficulty in accessing peripheral veins in emergency departments increases patients' discomfort and impedes their diagnosis. The objective of this study was to develop and test the prognostic accuracy of an easily applied scale to measure difficult venous access to peripheral veins in emergency departments, called the Adult-Difficult Venous Catheterization scale.

Methods: This prospective observational study was conducted in adults from the hospital catchment area attending the emergency department. Using the Delphi technique, 5 experts reached a consensus regarding a 3-item scale scored from 0 to 5. Concurrent validity and predictive validity were analyzed using a numeric rating scale and the number of access attempts, respectively. Internal consistency and interobserver reliability for 3 independent observers were analyzed using Cronbach alpha and Cohen kappa, respectively.

Results: In 392 participants, the concurrent and predictive validity scores pointed to positive relationships with the numeric rating scale ($r = 0.82$; $P < 0.001$) and the number of access attempts ($r = 0.5$; $P < 0.001$), respectively. The odds ratio for 1 to 2 access attempts versus more than 2 access attempts in relation to the Adult-Difficult Venous Catheterization scale score was 2.76 (95% confidence interval 1.86, 4.08; $P < 0.001$). Sensitivity and specificity values for the Adult-Difficult Venous Catheterization scale were good, at 93.75% and 78.99%, respectively, as were internal consistency (Cronbach alpha 0.81) and interobserver reliability (Cohen kappa 0.75).

Discussion: The Adult-Difficult Venous Catheterization scale is a valid and reliable instrument for predicting difficult venous access in emergency departments.

Reference:

Salleras-Duran L, Fuentes-Pumarola C, Ballester-Ferrando D, Congost-Devesa L, Delclós-Rabassa J, Fontova-Almató A. Development, Diagnostic Sensitivity, and Prognostic Accuracy of the Adult-Difficult Venous Catheterization Scale for Emergency Departments. J Emerg Nurs. 2020 Sep 21:S0099-1767(20)30211-7. doi: 10.1016/j.jen.2020.06.013. Epub ahead of print. PMID: 32972765.