

Reference:

BACKGROUND: Difficult peripheral intravenous cannulation (DPIVC) is associated with serious complications related to vascular access. These complications might be avoided if the risk factors were identified previously, enabling the detection of potentially difficult situations at an early stage. The aim of this study is to consider these risk factors, to determine the influence of the hospital setting, to examine the association between DPIVC and the different techniques of catheter insertion and to analyse the importance of the clinician's experience in this context.

METHODS: Case-control study following a previously published protocol, conducted in 48 units of eight public hospitals in Spain. Adult patients requiring a peripheral intravenous cannula were prospectively included in the study population during their hospital stay. Over a period of 11 months, for consecutive eligible patients, nurses in each participating unit recorded data on their assessment of the vascular access performed and the technique used. Variables related to these medical personnel were also recorded. One of the researchers reviewed the patients' clinical history to compile the relevant health variables and to characterise the healthcare process. The statistical analysis included association tests among the main study variables. The risk factors were analysed using bivariate logistic regression. The variables found to be statistically significant were included in a multivariate logistic regression model incorporating each of the healthcare environments identified.

RESULTS: The study population was composed of 2662 patients, of whom 221 (8.3%) presented with DPIVC. A previous history of difficulty, the presence of non-palpable veins, acute upper limb alterations and punctures in the ante-cubital fossa were found to be independent risk factors for DPIVC. Differences were found in the frequency of occurrence of DPIVC and in some risk factors, according to the healthcare context. The variables related to the characteristics of the hospital personnel did not influence the study event.

CONCLUSION: The present study identifies four independent risk factors for DPIVC that can be incorporated into algorithms aimed at preventing its occurrence and facilitating the referral of patients to vascular access specialist teams.

Reference:

Rodriguez-Calero, M.A., de Pedro-Gomez, J.E., Molero-Ballester, L.J., Fernandez-Fernandez, I., Matamalas-Massanet, C., Moreno-Mejias, L., Blanco-Mavillard, I., Moya-Suarez, A.B., Personat-Labrador, C. and Morales-Asencio, J.M. (2020) Risk Factors for Difficult Peripheral Intravenous Cannulation. The PIVV2 Multicentre Case-Control Study. *Journal of Clinical*

Medicine. 9(3), p.E799. doi: 10.3390/jcm9030799.

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Continuing Education Activity

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1. Identify the four independent risk factors for difficult cannulation?

- Diabetes Mellitus
- Non-palpable veins
- Acute alteration of the upper limbs
- Non-visible veins
- Previous history of difficult IV access
- Selection of the antecubital fossa for puncture

2. How do the authors define patients who are difficult to cannulate?

- One failed attempt?
- Two failed attempts?
- Three attempts?
- Four or more attempts?

3. Previous research identified this disease as a significant risk factor for difficult IV access. However, it was not represented in the population of this study. Which three word answer is it?

4. What is the most common cannula size in this study?

- 16 gauge
- 18 gauge
- 20 gauge
- 22 gauge

5. How many patients with difficult IV access received ultrasound guided vascular access?

- 9.9%
- 19.9%
- 29.9%
- 39.9%

- 6. What was the maximum number of cannulation attempts undertaken by the study participants?
 - 6
 - 7
 - 8
 - 9
- 7. How many patients have a peripheral intravenous catheter inserted in the emergency department?
 - 10%
 - 40%
 - 70%
 - 90%
- 8. What is the average number of punctures in the difficult IV access group?
 - 1.3
 - 2.3
 - 3.3
 - 4.3
- 9. Difficult peripheral IV access is reported to affect what percentage of patients?
 - 10-24%
 - 15-29%
 - 20-34%
 - 25-39%
- 10. In this study, how many patients with difficult IV access had access inserted in the lower limb?
 - 1.3%
 - 2.3%
 - 3.3%
 - 4.3%

Thank you for completing the Difficult intravenous access - CE activity multiple-choice quiz on the July 11, 2020.



Risk factors for difficult peripheral IV cannulation and vascular
access team referral - CE activity | 4

Name

Email