

ASSESSING PARAMETERS AND MICROBIOLOGICAL FACTORS AFFECTING PHLEBITIS ASSOCIATED WITH PERIPHERAL CANNULAS

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OBJECTIVES

The use of intravenous tools is an essential part of health care, during which phlebitis develops on many occasions. In our research, we aimed to explore aspects that could result in decreasing these infections.

METHODS

Our experimental, prospective, qualitative, and quantitative study was conducted between July and September of 2021 at the 2nd Department of Internal Medicine, Department of Neurology and the Department of Neurosurgery, University of Pécs, Hungary. The demographics of the patients enrolled in the study (n=105) and the properties of the peripheral short cannulas used were identified using a questionnaire. The cannulas were monitored throughout their application and the removed cannulas were collected for microbiological examination. Data were evaluated using IBM SPSS Statistics 26.0 and Microsoft Excel software. Besides descriptive statistics, t test, χ^2 test and ANOVA were calculated ($p \leq 0.05$).

RESULTS

We found that a significantly higher amount of phlebitis had developed among older patients (≥ 76 years; n=20), than younger ones (≤ 75 years; n=25; $p=0.004$). The cannulas stayed an average of 72.08 ± 54.62 hours (min=6, max=283) in the vein before removal. There was no significant difference in the development of phlebitis between the group of cannulas used for ≤ 72 hours (n=29) and those used for at least 73 hours (n=16) ($p=0.43$). No significant difference was found between the presence of microorganisms and phlebitis ($p=0.284$). However, a significant difference was found in the proportion of cultured microorganisms in cannulas inserted into the elbow joint (n=11) and in cannulas inserted into other veins (n=41) ($p=0.007$).

CONCLUSIONS

Based on our results we concluded that routinely done, timely cannula removal in not an appropriate solution to avoid phlebitis development, also besides demographic factors and aspects of cannula care, microbiological factors were also played a key role.

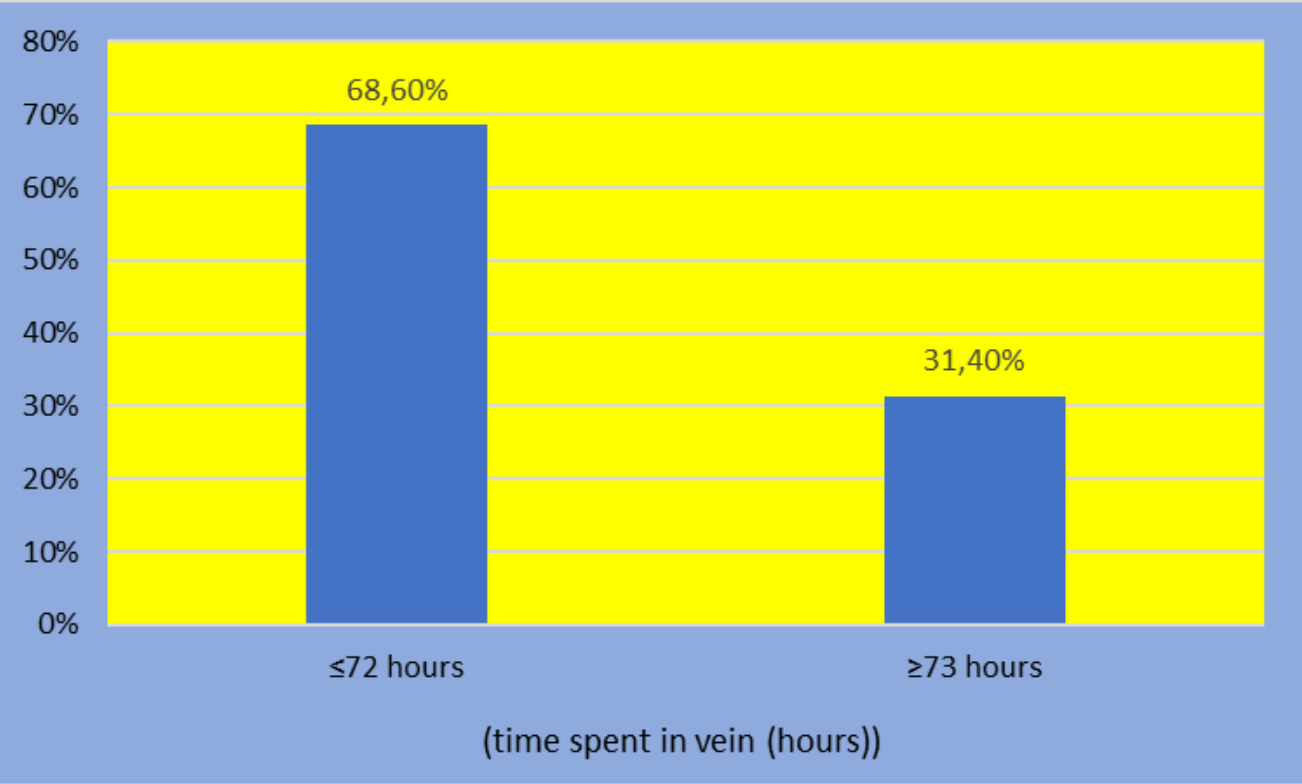


Figure 1.
Time of the application of examined cannulas (n=105)

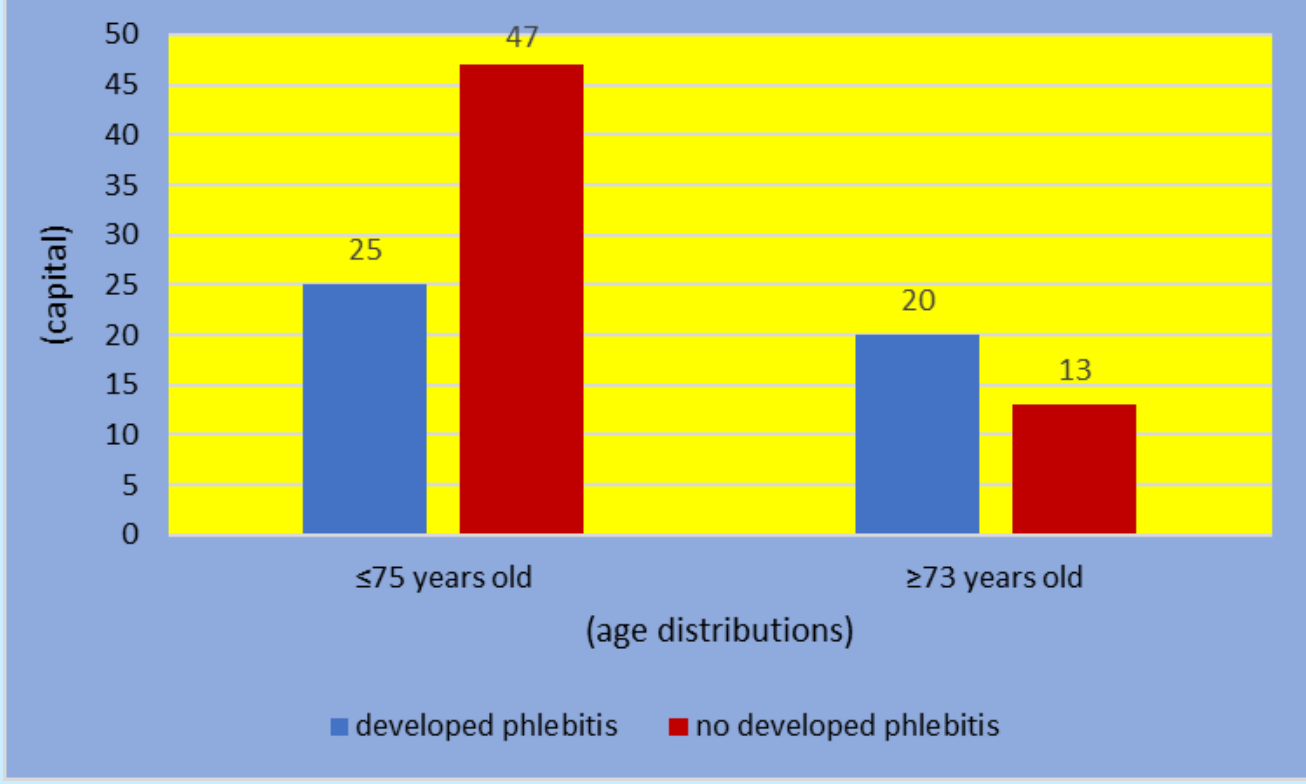


Figure 2.
Frequency of developing phlebitis at different ages (n=105)

Variable	(n)	(%)	Min.-Max.	Mean-Standard Deviation
Gender distribution				
man	49	46,7	-	-
woman	56	53,3		
Age distribution (according to WHO)				
18-50 years	22	21	21-90	64,8±17,486
51-60 years	15	14,3		
61-75 years	36	34,3		
76-90 years	32	30,5		

Table 1.
Presentation of the demographic data (n=105)

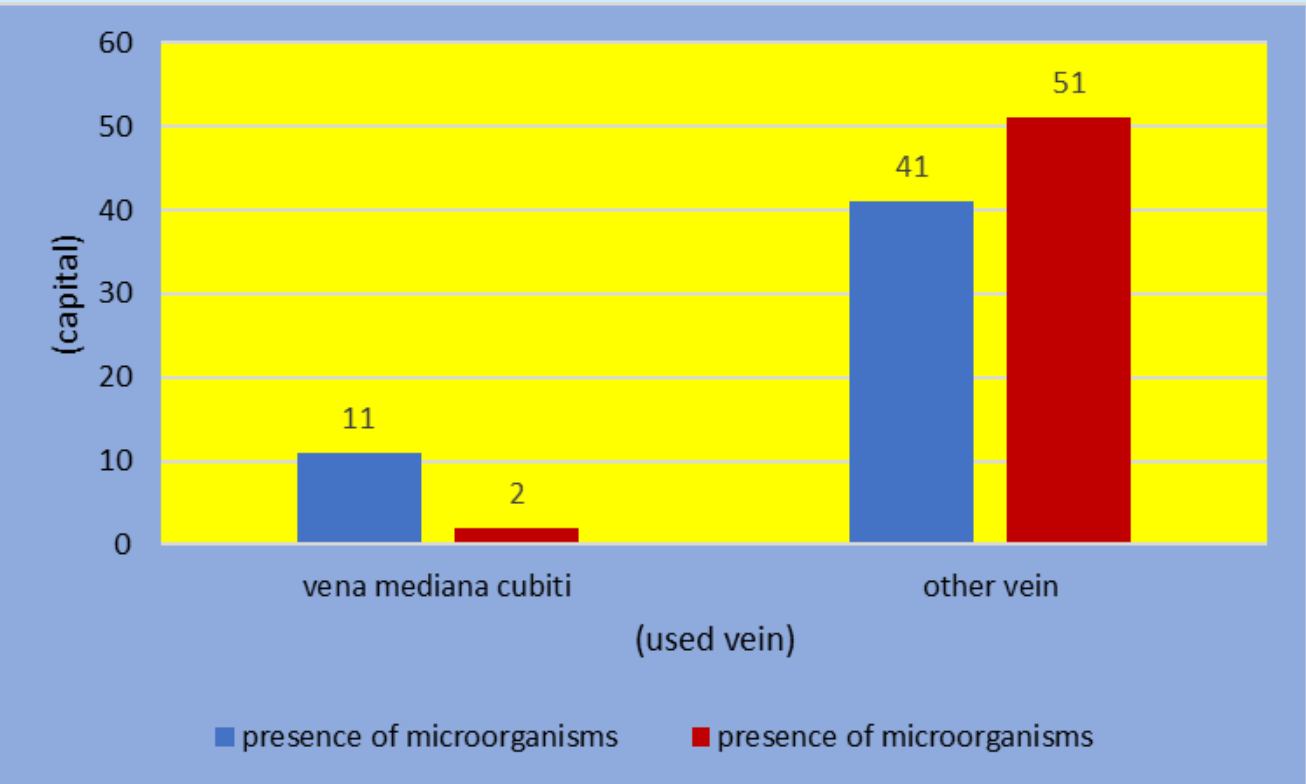


Figure 3.
Frequency of microorganisms cultured during punctured veins (n=105)

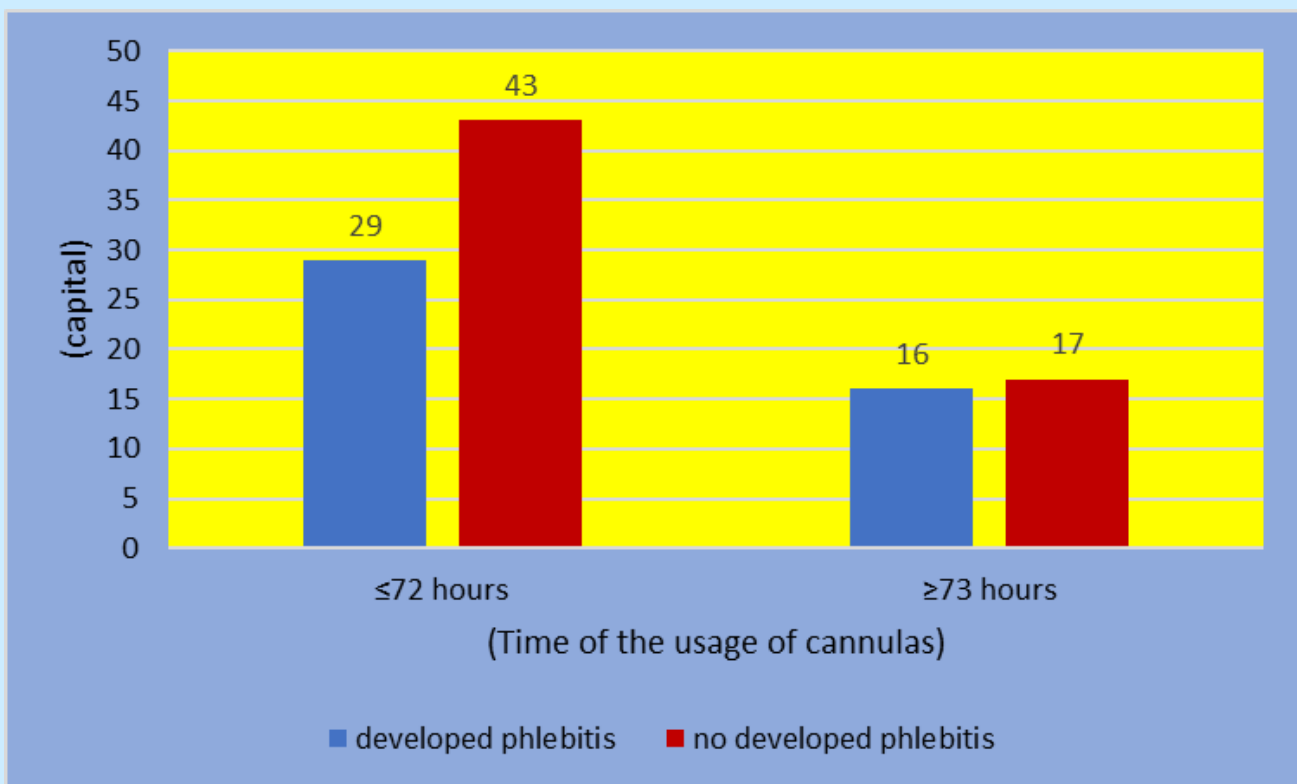


Figure 4.
Frequency of developing phlebitis at different ages (n=105)

ISPOR Europe 2022
6-9 November 2022



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