



# **The effect of needle fixation on the occurrence of acute access complications**

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# Introduction

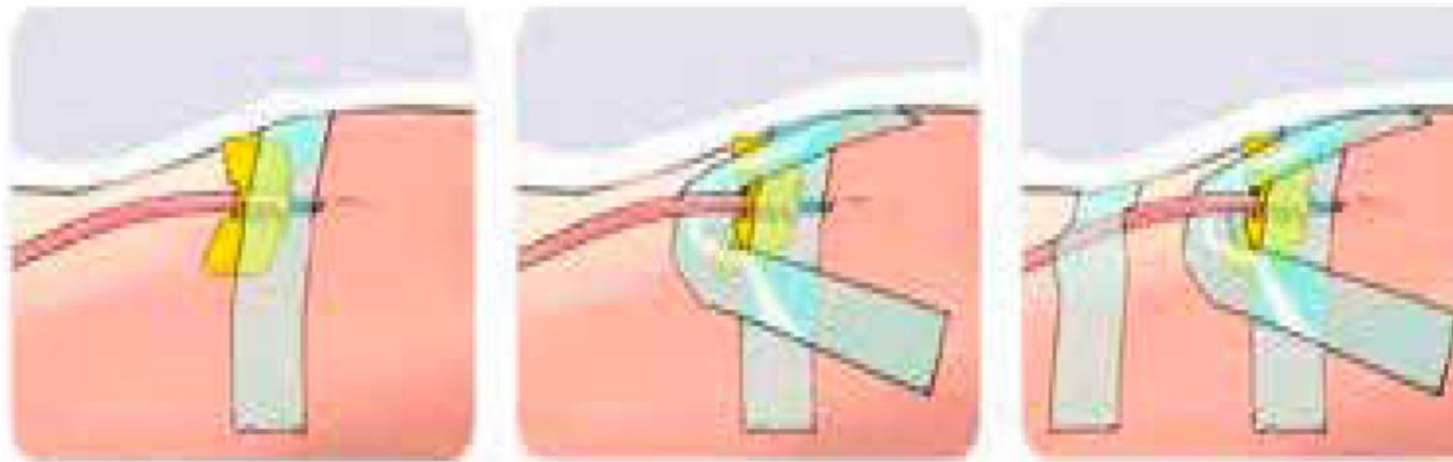
- The insertion of two needles into the vascular access (VA) is a basic nursing activity
- The fact that this activity has to be repeated approximately 156 times/year, reveals its importance in the medium/long-term maintenance of the VA
- Cannulation is an essential skill of dialysis nurses: failure to correctly perform this activity may result in serious complications which could in turn affect the survival of the VA

# Objectives

- To investigate the occurrence of acute access complications with different methods of arteriovenous fistula (AVF) and graft (AVG) needle fixation

# Methods

- In April 2009, we conducted a survey in 171 clinics with 10,807 patients about various methods of needle fixation and the occurrence of acute complications during cannulation.



# Results (1/2)

- Comparison of needle taping technique in percentages between AVF and AVG and between forearm and upper arm.

Nursing practice aspect		Arteriovenous Fistula		Arteriovenous Graft	
		forearm	upper arm	forearm	upper arm
Needle fixation	Butterfly	6.0	4.6	1.5	3.4
	Chevron	9.8	8.3	10.0	12.3
	U-Shape	28.8	28.1	24.6	32.6
	Others	55.4	58.9	63.8	51.6

# Results (2/2)

- Results of the logistic regression model evaluating nursing practice aspects in respect to the event “acute cannulation complication” revealed

Nursing practice aspect			OR	95% confidence Interval		p-value
Variable	Reference	Category		Lower limit	Higher limit	
Cannulation technique	Rope-Ladder	Buttonhole	0.559	0.332	0.942	0.029
		Area	0.613	0.482	0.780	<0.001
Needle axis rotation	No	Yes	1.522	1.206	1.921	<0.001
Needle fixation	Butterfly	Chevron	0.836	0.474	1.475	NS
		U-Shape	0.754	0.461	1.232	NS
		Others	0.561	0.347	0.905	0.018

# Conclusions

- Fixation of needles and blood lines is very important to prevent needle dislodgment
- Our study revealed a significantly lower odds ratio for the V-shape as compared to the Butterfly technique
- Fixation using the U- or V-shape technique may be beneficial to avoid acute cannulation infiltration
- However, further investigation is required for specific conclusion

**Thank You Very Much  
for Your Attention!**



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