



I PICC SOTTO ACCUSA: L'UTILIZZO DI PICC SI ASSOCIA AD UN MAGGIOR RISCHIO DI TROMBOSI VENOSA ?

Sergio Bertoglio

DIPARTIMENTO DI SCIENZE CHIRURGICHE – UNIGe

CHIRURGIA 1 – Ospedale Policlinico San Martino
Genova



MAGGIOR RISCHIO RISPETTO A QUALE PRESIDIO ?

- TRATTANDOSI DI UN CVC DOVREMMO PER FORZA RIFERIRCI

PAZIENTE AREA
CRITICA

CICC-CVC

PAZIENTE
OSPEDALIZZATO

CICC-CVC
CICC-CVC TUNNELLIZZATO

PAZIENTE CRONICO

- Ospedalizzato
- Ambulatoriale
- Domiciliare

CICC-CVC TUNNELLIZZATO
PORT
PICC-PORT

CICC -PORT

LA MADRE DI TUTTI I DUBBI / INESATTEZZE

Risk of venous thromboembolism associated with peripherally inserted central catheters: a systematic review and meta-analysis



Lancet 2013; 382: 311-25

Vineet Chopra, Sarah Anand, Andy Hickner, Michael Buist, Mary A M Rogers, Sanjay Saint, Scott A Flanders

COMPARATIVE RISK FOR DVT BETWEEN PICCs AND CICC_s

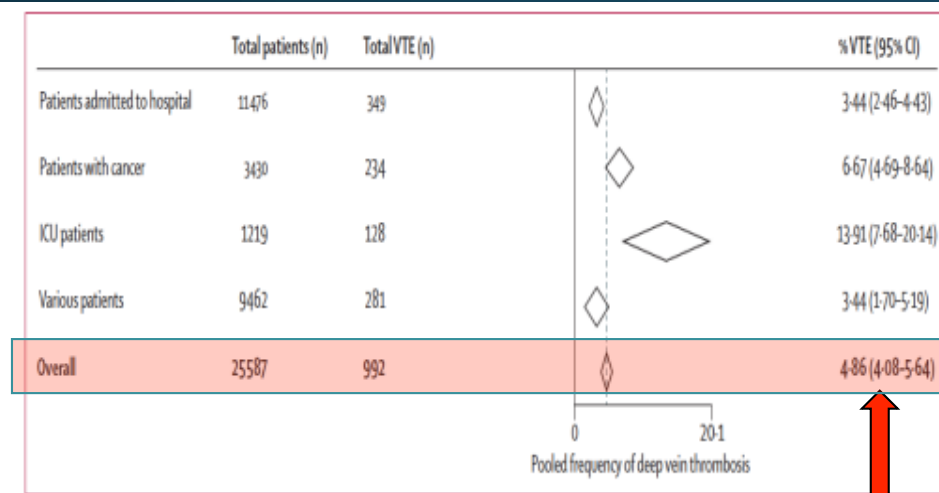


Figure 3: Forest plot showing weighted frequency of peripherally inserted central catheter-related VTE risk, stratified by patient population. VTE=venous thromboembolism. ICU=intensive care unit.

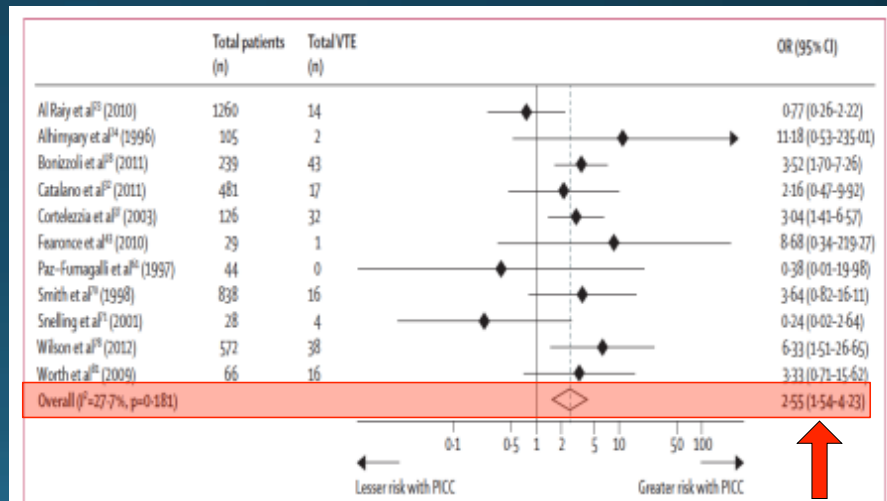


Figure 4: Risk of venous thromboembolism between peripherally inserted central catheters and central venous catheters in studies with a comparison group. Forest plot showing odds of development of upper-extremity DVT in patients with peripherally inserted central catheters versus central venous catheters. VTE=venous thromboembolism. OR=odds ratio. PICC=peripherally inserted central catheter.

IL FIGLIO DI MOLTI DUBBI E DUBBI / INESATTEZZE

Annals of Internal Medicine®

•Supplement |15 September 2015 163;(6 Suppl): S1-40

**The Michigan Appropriateness Guide for Intravenous Catheters (MAGIC):
Results From a Multispecialty Panel Using the RAND/UCLA Appropriateness
Method Free**

Vineet Chopra, MD, MSc; Scott A. Flanders, MD; Sanjay Saint, MD, MPH; Scott C. Woller, MD; Naomi P. O'Grady, MD; Nasia Safdar, MD, PhD; Scott O. Trerotola, MD; Rajiv Saran, MD, PhD; Nancy Moureau, BSN, RN; Stephen Wiseman, PharmD; Mauro Pittiruti, MD; Elie A. Akl, MD, MPH, PhD; Agnes Y. Lee, MD, MSc; Anthony Courey, MD; Lakshmi Swaminathan, MD; Jack LeDonne, MD; Carol Becker, MHSA; Sarah L. Krein, PhD, RN; Steven J. Bernstein, MD, MPH

INCIDENZA DI CR-TVP PER I CVC NON PICC

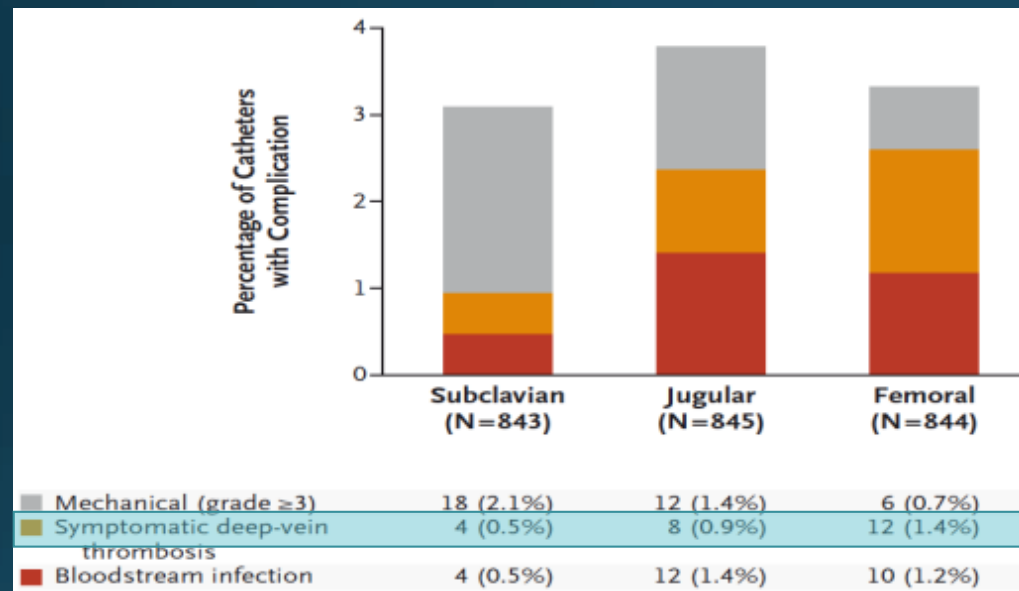
AREA CRITICA	→	0.5-12%
PAZIENTE ACUTO OSPEDALIZZATO	→	1-5%
PAZIENTE ONCOLOGICO	→	1.5-7%

**FATTORE TEMPO-DURATA DEL DEVICE
PAZIENTI SINTOMATICI
SOLO 1/3 DELLE CR-DVT E' OVERT**

INTRAVASCULAR COMPLICATIONS OF CENTRAL VENOUS CATHETERIZATION BY INSERTION SITE IN ICU SETTING (EXTERNAL CATHETERS)

RCT 3 SITES S-J-F
3047 CATHETERS

PARIENTI JJ ET AL , N.ENGL J MED 2015;373;13



CUMULATIVE SYMPTOMATIC DVT RATES BY SUBCLAVIAN AND INTERNAL JUGULAR ACCESS CVCs

1.3%

AL CONTRARIO DEI CICC/ PORT LA MAGGIOR PARTE DELLE TROMBOSI DA PICC SONO SINTOMATICHE

Lancet 2013; 382: 311-25

AD ESCLUSIONE DEL
PAZIENTE **ONCOLOGICO ED IN
ICU** NON ESISTONO
SIGNIFICATIVE DIFFERENZE DI
INCIDENZA DI CR-DVT

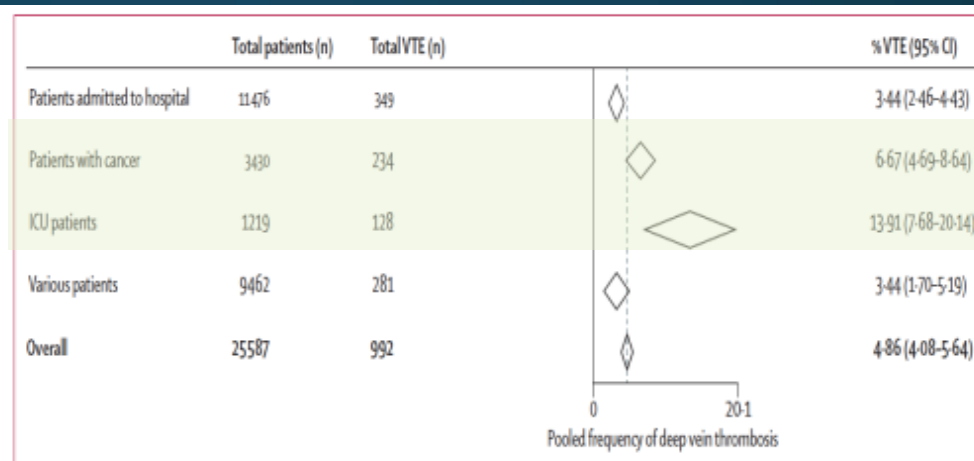


Figure 3: Forest plot showing weighted frequency of peripherally inserted central catheter-related VTE risk, stratified by patient population
VTE=venous thromboembolism. ICU=intensive care unit.

MA ALLORA DOBBIAMO ESSERE
REALMENTE PREOCCUPATI
PER L' INCREMENTO DI RISCHIO DI TVP
PER ACCESSO BRACHIALE?

CONSAPEVOLI E
ATTENTI
SI

Peripherally Inserted Central Catheters (PICCs) in Cancer Patients Under Chemotherapy: A Prospective Study on the Incidence of Complications and Overall Failures

SERGIO BERTOGLIO, MD,^{1,2*} BEATRICE FACCINI, RN,³ LUCA LALLI, ScD,⁴ FERDINANDO CAFIERO, PMD,²
AND PAOLO BRUZZI, MD⁴

J. Surg. Oncol. 2016;113:708–714.

TABLE II. Frequency of Complications and Removal of 291 Observed PICCs

Type of complications	Total complications		Removal	
	n	%	n	%
PICC-UEDVT	34	11.7	12	4.1
PICC-CLABSI	6	2.1	5	1.7
Exit site infection	14	4.8	9	3.1
Dislodgement/inadvertent removal	11	3.8	11	3.8
Occlusion	7	2.4	7	2.4
Total	72	24.7	44	15.1

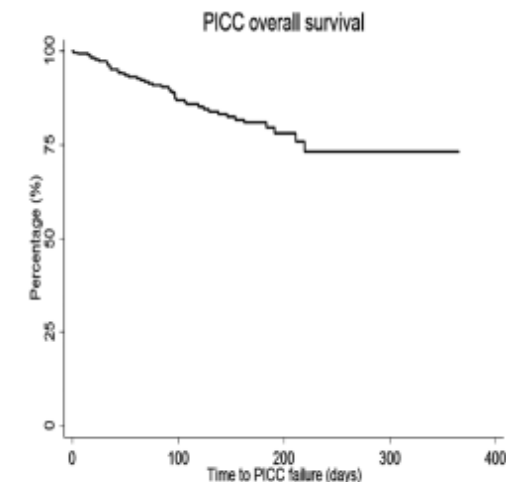


Fig. 1. Kaplan-Meier curve for overall peripherally inserted central catheters (PICC) survival free from failure.

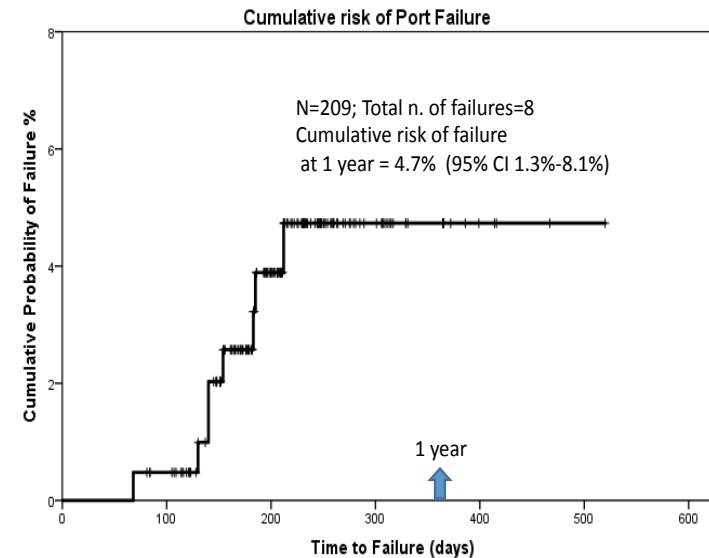
A retrospective analysis on the utility and complications of upper arm ports in 433 cases at a single institute

Yukiko Mori¹ · Satoshi Nagayama² · Jun-ichiro Kawamura² · Suguru Hasegawa² · Eiji Tanaka² · Hiroshi Okabe² · Megumi Takeuchi³ · Makoto Sonobe⁴ · Shigemi Matsumoto¹ · Masashi Kanai¹ · Manabu Muto¹ · Tsutomu Chiba^{1,5} · Yoshiharu Sakai²

Complications	<i>n</i>	Complication/1000 catheter days (complication rate; %)	Evulsion
Catheter infection	27	0.107 (6.2)	27
Port infection	16	0.064 (3.7)	14
Thrombosis	10	0.040 (2.3)	3
Obstruction	10	0.040 (2.3)	9
Catheter dislocation	9	0.036 (2.1)	9
Reserver leak	5	0.020 (1.2)	4
Skin complication (exposure)	4	0.016 (1.0)	4
Port rotation/flip	2	0.008 (0.5)	2
Total	83		72

PICC-PORT Complicanze tardive 289 casi POLICLINICO SAN-MARTINO GENOVA (*data in press*)

TIPO COMPLICANZA	N (%)	RIMOZIONE PICC-PORT
STRAVASO FARMACO	5 (1.7%)	3 (1%)
INFEZIONE TASCA	3 (1%)	3 (1%)
CR-BSI	1 (0.3%)	1 (0.3%)
OCCLUSIONE E CATETERE	3 (1%)	3(1%)
UE-DVT	10 (3.4%)	-----
TOTALE	22 (7.6%)	10 (3.4%)



www.impactjournals.com/oncotarget/ Oncotarget, 2018, Vol. 9, (No. 15), pp: 12376

Risk associated with central catheters for malignant tumor patients: a systematic review and meta-analysis

Yajuan Lv^{1,*}, Yong Hou^{1,*}, Bo Pan^{2,*}, Yuwan Ma^{2,*}, Paiyun Li², Lili Yu¹, Deguo Xu¹, Juanjuan Song¹, Heli Shang¹, Hongyan Wang¹ and Yuan Tian¹

¹Department of Radiation Oncology, Shandong Provincial Qianfoshan Hospital Affiliated to Shandong University, Jinan, Shandong, 250014, P.R. China

The result showed that CICC's were associated with a decrease in the odds ratio of thrombosis compared with PICCs

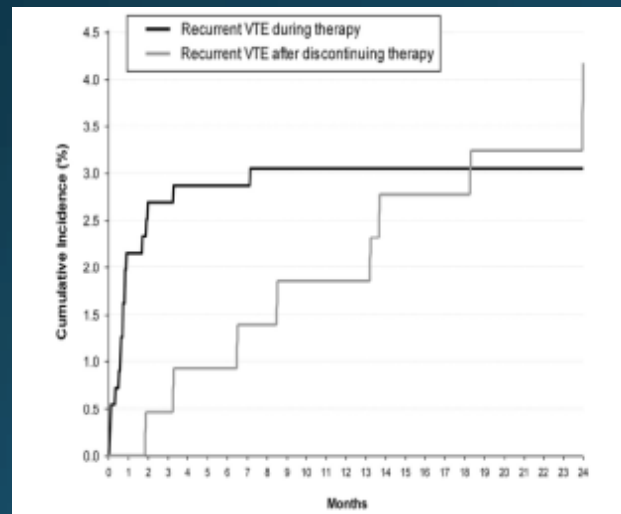
$$(OR = 0.30, 95\% CI: 0.12-0.75, p < 0.05)$$

We found that PICCs are associated with a raised risk of deep vein thrombosis, and pharmacological deep vein thrombosis prophylaxis drugs is a beneficial factor in decreasing the incidence of thrombosis, while warfarin may decrease the risk of mortality of malignant tumor patients with CICC's.

A RIETE registry analysis of recurrent thromboembolism and hemorrhage in patients with catheter-related thrombosis

Lisa Baumann Kreuziger, MD, MS,^a Lauren Cote, RN, BSN,^b Peter Verhamme, MD, PhD,^c Steven Greenberg, MD,^d Joseph Caprini, MD, MS,^{e,f} Francisco José Muñoz, MD,^g Reina Valle, MD, PhD,^h and Manuel Monreal Bosch, MD, PhD,ⁱ for the RIETE Investigators, *Milwaukee, Wis; Chicago and Evanston, Ill; Leuven, Belgium; and Barcelona and Cantabria, Spain*

JOURNAL OF VASCULAR SURGERY: VENOUS AND LYMPHATIC DISORDERS
July 2015



12 months recurrent DVT/PE and related mortality

GLOBAL RECURRENT DVT 2.58%

GLOBAL RECURRENT PE 1.97%

MORTALITY FOR RECURRENT PE 0.89%

**EXPECTED MORTALITY PER
CR-DVT EVENT
1/10.000 CR-DVT
as per 4% incidence CR-DVT
1-EVENT / 250.000 PICCs**

BILANCIARE VANTAGGI E RISCHI PICC

SVANTAGGI
CR-UEDVT

SVANTAGGI DA
CR-BSI
MORTALITY 12-25% (CDC-Data)

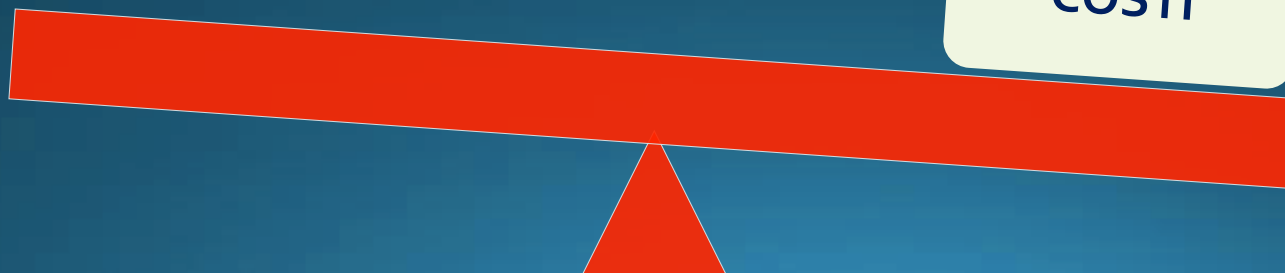
MORTALITA'

COSTI /MORBILITA'
SINDROMI POST-
FLEBITICHE

MORTALITA'

MORBILITA'

COSTI



FATTORI DI RISCHIO PER PICC-UEDVT

RELATIVI AL PZIENTE

- Pregressa DVT
- Neoplasia
- Fattori congeniti

**IMPIANTATORE
INDIPENDENTE**

RELATIVI AL PRESIDIO

- Dimensioni
- N° Lumi
- Materiali (PUR)
- Sistemi stabilizzazione
e fissaggio

RELATIVI ALLA TECNICA IMPIANTO

- Utilizzo US
- Corretta sede impianto
- Corretta scelta vena
- N° tentativi
- No doppio passaggio
parietale

IMPIANTATORE DIPENDENTE

CONCLUSIONI

- **LIEVE MAGGIOR INCIDENZA DI PICC-UEDVT –
RELATIVO IMPATTO CLINICO**
- **AZZERARE IL RISCHIO PER FATTORI OPERATORE
DIPENDENTI**
- **SCREENARE SOTTOCATEGORIE A RISCHIO E
PROFILASSI**



GRAZIE PER LA VOSTRA ATTENZIONE

sergio.bertoglio@unige.it