GAVeCeLT
Gli Accessi Venosi Centrali a Lungo Termine

III Convegno Nazionale
sui PICC-port

XVI PICC Day
Convegno Nazionale Annuale sui PICC

Il trattamento della trombosi venosa da PICC

Dott. Igor Giarretta

Dipartimento di Area Medica,
Ospedale di Circolo e Fondazione Macchi, Varese

ROMA 2023
11-12 Dicembre

III Convegno Nazionale
sui PICC-port

XVI PICC Day
Convegno Nazionale Annuale sui PICC

Agenda:

1. *Finalità del trattamento*
2. *Quale terapia*
3. *Per quanto tempo*
4. *Prevenzione*
5. *Algoritmo terapeutico (suggerimento)*

ROMA 2023
11-12 Dicembre

Treatment goals:

- Save the venous access device
- Relieve the symptoms (usually within 48 hrs)
- Prevent pulmonary embolism
- Prevent the further growth of the thrombus

GAVeCeLT
Gli Accessi Venosi Centrali a Lungo Termine

CE Test Material

Catheter-Related Central Venous Thrombosis: The Development of a Nationwide Consensus Paper in Italy

Costantino Campisi, MD, Roberto Biffi, MD, and Mauro Pittiruti, MD
on behalf of the GAVeCeLT Committee for the Consensus

Conclusions of the Consensus

- Thrombolytic drugs should be used in acute symptomatic cases (diagnosis <24 hours after the first symptoms). Efficacy of systemic versus local thrombolysis is still matter of debate, especially for large thrombi.

Only if
CRT is at the tip,
CRT onset is esteemed to be very recent (< 24 hrs)

ROMA 2023
11-12 Dicembre

clinical practice guidelines

Annals of Oncology 26 (Supplement 5): v152–v168, 2015
doi:10.1093/annonc/mdv296

III Convegno Nazionale
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Convegno Nazionale Annuale sui PICC

Central venous access in oncology: ESMO Clinical Practice Guidelines†

B. Sousa[1], J. Furlanetto[2], M. Hutka[3], P. Gouveia[1], R. Wuerstlein[4], J. M. Mariz[5], D. Pinto[1] & F. Cardoso[1], on behalf of the ESMO Guidelines Committee*

[1]Breast Unit, Champalimaud Clinical Center, Lisbon, Portugal; [2]German Breast Group, Neu Isenburg, Germany; [3]St George's University Hospitals, NHS Foundation Trust, London, UK; [4]CCC of LMU, Breast Center, University Hospital Munich, Munich, Germany; [5]Department of Haematology, Instituto Português de Oncologia do Porto- Francisco Gentil, Oporto, Portugal

ROMA 2023
11-12 Dicembre

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[1]Breast Unit, (
NHS Foundat
Instituto Portu

Catheter-related thrombosis —treatment

- Anticoagulation therapy with LMWH is the preferred treatment, as it is more effective in preventing thrombosis and has less risk for bleeding compared with VKA [II, A]
- If the catheter is functional and there are no risks for complications, or severe/rapid progressive symptoms, anticoagulation treatment should be continued for the time length of time the catheter is in use [III, C]
- If the CVC is not necessary or non-functioning, or there is concomitant deep vein thrombosis, sepsis, or if long-term anticoagulation is contraindicated, a short course (3–5 days) of anticoagulation therapy is recommended and then the catheter should be removed [I, A]
- LMWH alone or LMWH followed by warfarin should be used for a minimum of 3–6 months [I, C]
- It is recommended to continue anticoagulation therapy at a prophylactic dose, until the catheter is in place [I, C]
- Thrombolytic (urokinase, streptokinase and alteplase) treatment is not recommended as a first-line therapy, due to a greater risk of thrombosis [I, B]

CE Test Material

III Convegno Nazionale sui PICC-port

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Conclusions of the Consensus

- Catheter removal or maintenance does not influence the outcome.
- Although local thrombolitic treatment may require the presence of the catheter, a poor peripheral vein status could represent a major limiting factor for most therapies, if the catheter has been removed.
- In case of clinically overt or imaging-diagnosed DVT , a risk of embolization during or immediately after catheter removal has been clinically confirmed.

Catheter should be removed in case of
Infected thrombus
Malposition of the tip
Irreversible occlusion of the lumen

clinical practice guidelines

Annals of Oncology 26 (Supplement 5): v152–v168, 2015
doi:10.1093/annonc/mdv296

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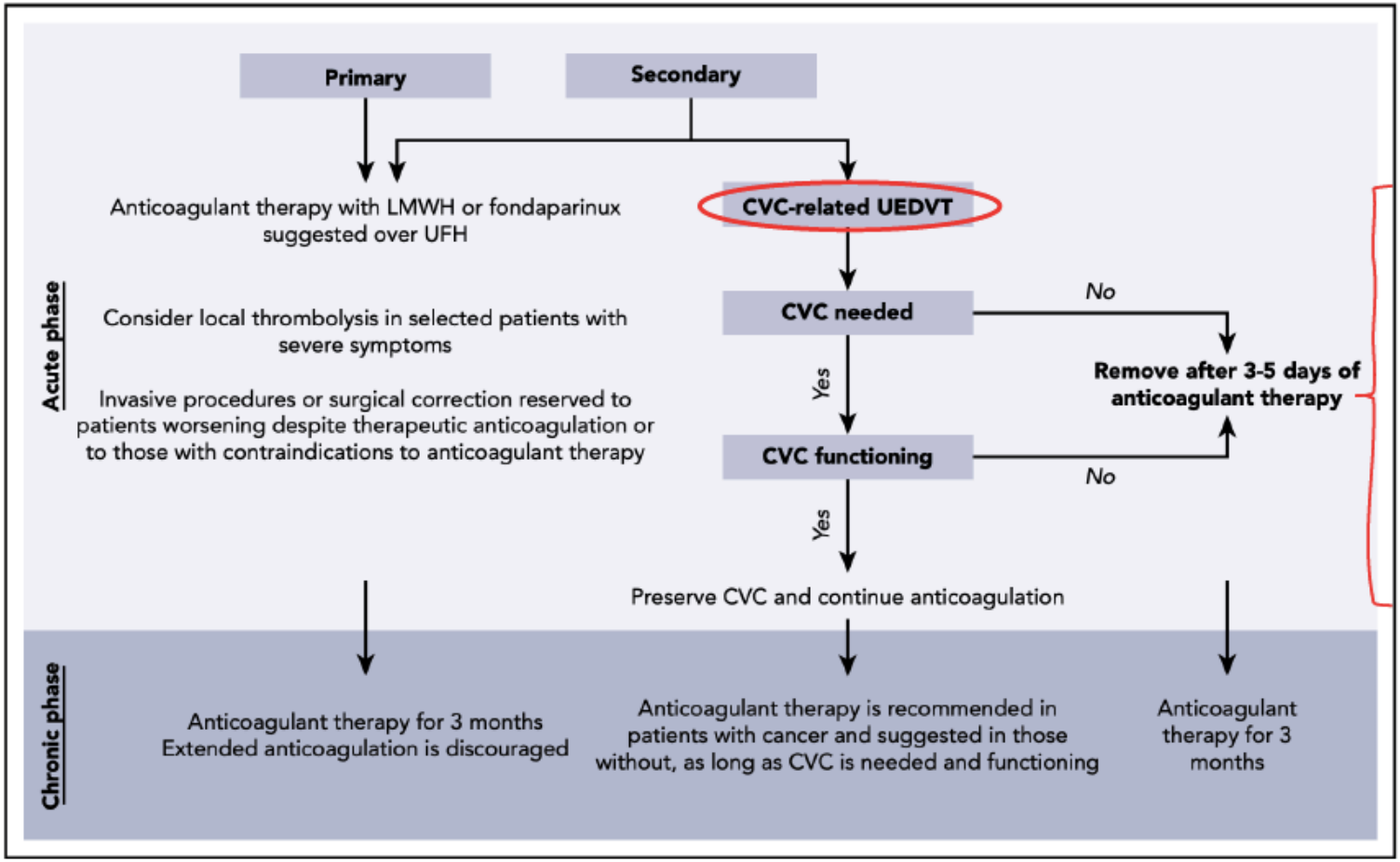
NCCN 2020
ASH 2021

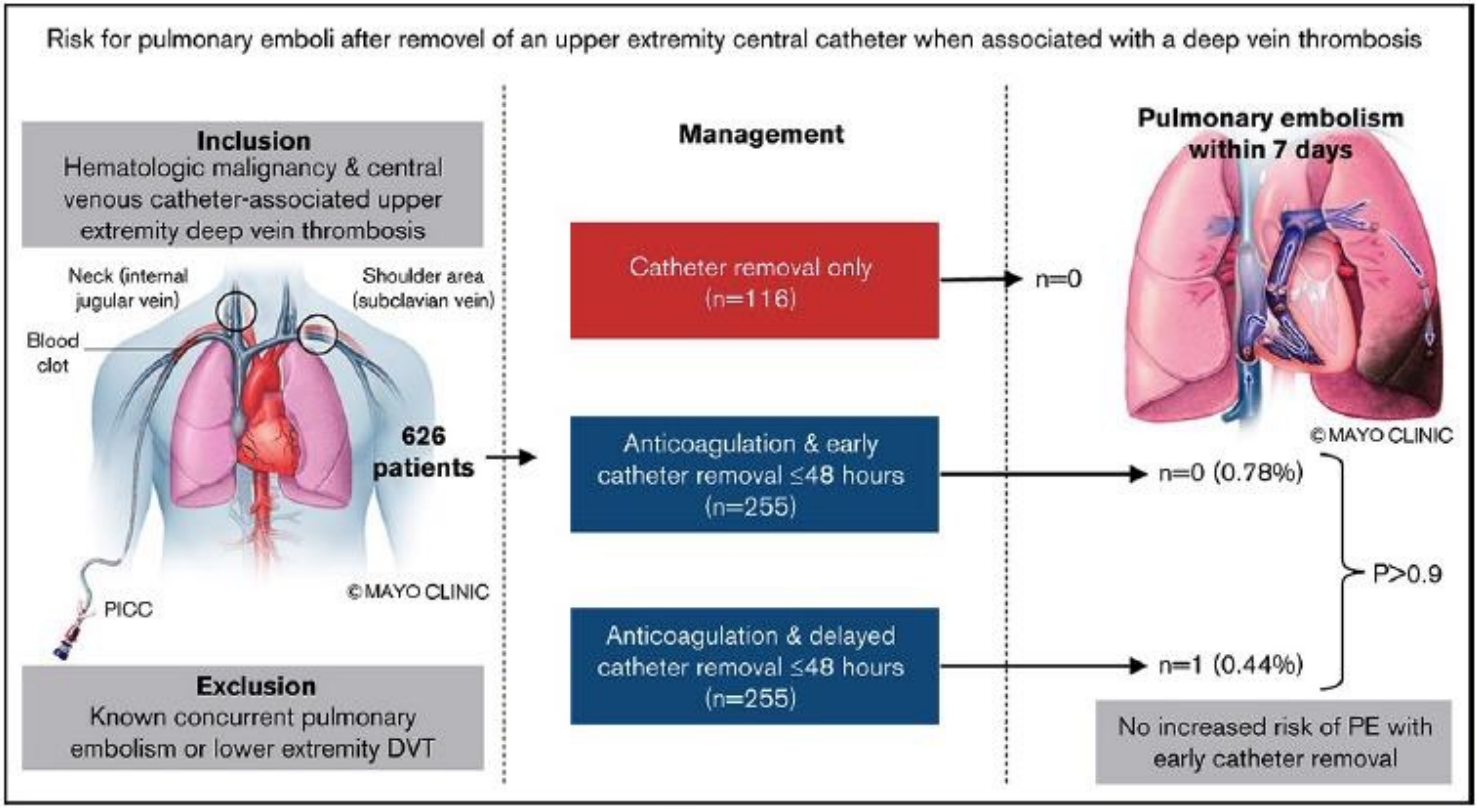


Sousa, B et al. (2015). Central venous access in oncology: ESMO Clinical Practice Guidelines. *Annals of Oncology*, *26*, v152-v168.

Zwicker, J. I. et al. (2014). Catheter-associated deep vein thrombosis of the upper extremity in cancer patients: guidance from the SSC of the ISTH. *Journal of Thrombosis and Haemostasis*, *12*(5), 796-800.

Abbattista M., et al. (2020). Treatment of unusual thrombotic manifestations. *Blood, The Journal of the American Society of Hematology*, *135*(5), 326-334.

Risk of pulmonary emboli after removal of an upper extremity central catheter associated with a deep vein thrombosis



Houghton et al. (2021) / *Blood Adv,* 27;5(14):2807-2812

CE Test Material

Catheter-Related Central Venous Thrombosis: The Development of a Nationwide Consensus Paper in Italy

Costantino Campisi, MD, Roberto Biffi, MD, and Mauro Pittiruti, MD
on behalf of the GAVeCeLT Committee for the Consensus

III Convegno Nazionale sui PICC-port

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Chronic symptomatic cases should be treated with a combination of LMWH and then oral anticoagulants, or LMWH long term alone, depending on the clinical setting. Compared with warfarin, the LMWHs exhibit a superior safety profile and more predictable antithrombotic effects and can usually be given once daily in a unit dose without the need for dose monitoring

TROMBOEMBOLISMO VENOSO
NEI PAZIENTI CON TUMORI SOLIDI

LINEE GUIDA 2020

Qualità globale delle prove	Raccomandazione clinica	Forza della raccomandazione
Bassa	Nei pazienti oncologici con trombosi correlata a CVC il trattamento anticoagulante per tre mesi può essere preso in considerazione (114-117).	Positiva debole
COI: Nessun conflitto dichiarato		

A 2023
icembre

Journal of Thrombosis and Haemostasis, 11: 71–80 DOI: 10.1111/jth.12071

ORIGINAL ARTICLE

International clinical practice guidelines for the treatment and prophylaxis of thrombosis associated with central venous catheters in patients with cancer

P. DEBOURDEAU,*[1] D. FARGE,††[1] M. BECKERS,§¶ C. BAGLIN,§¶ R. M. BAUERSACHS,**
B. BRENNER,†† D. BRILHANTE,‡‡ A. FALANGA,§§ G. T. GEROTZAFIAS,¶¶ N. HAIM,***
A. K. KAKKAR,††† A. A. KHORANA,‡‡‡ R. LECUMBERRI,§§§ M. MANDALA,¶¶¶ M. MARTY,****
M. MONREAL,††††,‡‡‡‡ S. A. MOUSA,§§§§ S. NOBLE,¶¶¶¶ I. PABINGER,***** P. PRANDONI,†††††
M. H. PRINS,‡‡‡‡‡ M. H. QARI,§§§§§ M. B. STREIFF,¶¶¶¶¶ K. SYRIGOS,****** H. R. BÜLLER†††††††[1]
and H. BOUNAMEAUX‡‡‡‡‡‡[1]

CVC-associated thrombosis, defined as a mural thrombus extending from the catheter into the lumen of a vessel, and leading to partial or total catheter occlusion with or without clinical symptoms.

Recommendations

1 For the treatment of symptomatic CRT in cancer patients, anticoagulant treatment is recommended for a minimum of 3 months; in this setting, LMWHs are suggested. Oral VKA can also be used, in the absence of direct comparisons of these two types of anticoagulants in this setting [Best clinical practice].'

ROMA 2023
11-12 Dicembre

CHEST Supplement
ANTITHROMBOTIC THERAPY AND PREVENTION OF THROMBOSIS, 9TH ED: ACCP GUIDELINES

Antithrombotic Therapy for VTE Disease

Antithrombotic Therapy and Prevention of Thrombosis, 9th ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines

Clive Kearon, MD, PhD; Elie A. Akl, MD, MPH, PhD; Anthony J. Comerota, MD; Paolo Prandoni, MD, PhD; Henri Bounameaux, MD; Samuel Z. Goldhaber, MD, FCCP; Michael E. Nelson, MD, FCCP; Philip S. Wells, MD; Michael K. Gould, MD, FCCP; Francesco Dentali, MD; Mark Crowther, MD; and Susan R. Kahn, MD

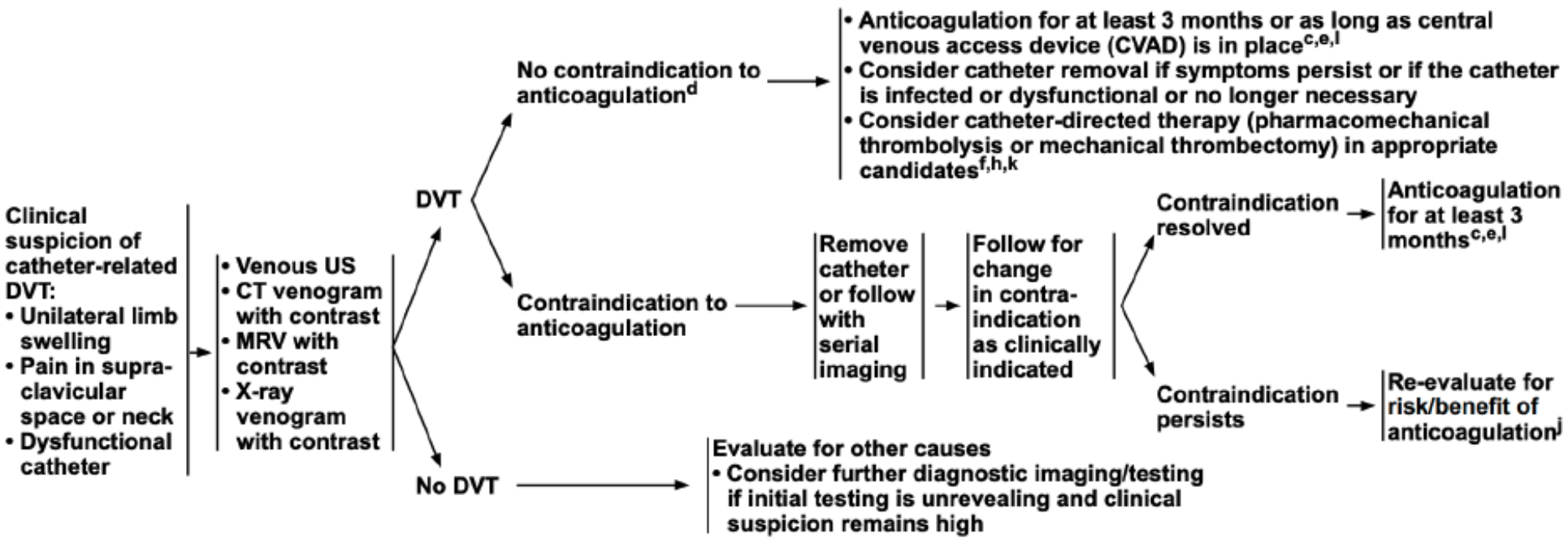
9.3.3. In patients who have UEDVT that is associated with a central venous catheter that is removed, we recommend 3 months of anticoagulation over a longer duration of therapy in patients with no cancer (Grade 1B), and we suggest this in patients with cancer (Grade 2C).

9.3.4. In patients who have UEDVT that is associated with a central venous catheter that is not removed, we recommend that anticoagulation is continued as long as the central venous catheter remains over stopping after 3 months of treatment in patients with cancer (Grade 1C), and we suggest this in patients with no cancer (Grade 2C).

National Comprehensive Cancer Network®

NCCN Guidelines Version 1.2022
Acute Deep Vein Thrombosis (DVT)

CATHETER-RELATED DVT: DIAGNOSIS AND TREATMENT

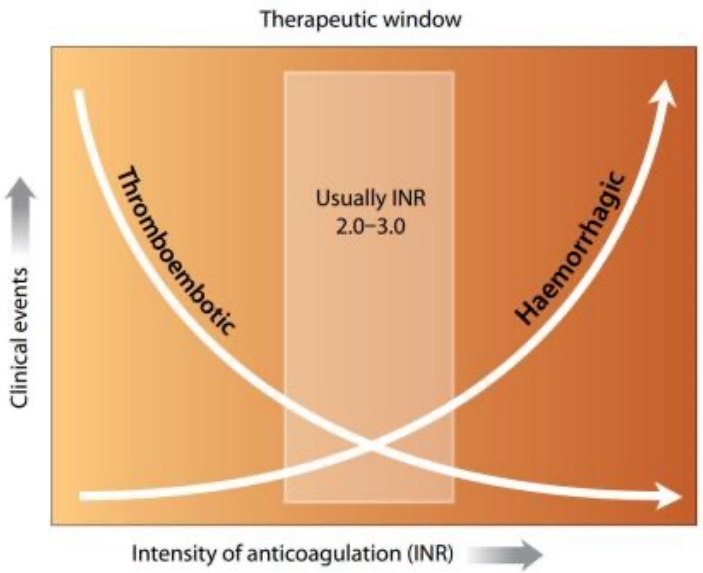


NCCN	ASCO	ACCP	SOR
LMWH: Dalteparin 200 U/kg o.d. Enoxaparin 1 mg/kg b.i.d. Tinzaparin 175 U/kg o.d. Fondaparinux 5 mg (<50 kg); 7.5 mg (50–100 kg); 10 mg (>100 kg o.d.) APTT-adjusted UFH infusion	LMWH is recommended for the initial 5–10 days of treatment of DVT and PE in patients with a CrCl >30 ml/min Installation of 2-mg-t-PA is recommended to restore patency and preserve catheter function	Initial treatment with UFH, LMWH or fondaparinux rather than VKA	LMWH for a minimum of 3 months VKA can be considered
LMWH is recommended for first 6 months as monotherapy without warfarin in patients with proximal DVT or PE and metastatic or advanced cancer Warfarin 2.5–5 mg every day initially (INR value target 2–3)	LMWH is recommended VKAs are acceptable (INR 2–3) if LMWH is not available 3–6 months of anticoagulation therapy with LMWH or LMWH followed by warfarin (INR 2–3) is recommended for treatment of symptomatic CVC thrombosis	LMWH preferred to VKA In patients not treated with LMWH, VKA therapy is preferred to dabigatran or rivaroxaban Patients receiving extended therapy should continue with the same agent used initially	Insufficient evidence to support extended therapy

Oral anticoagulants?

III Convegno Nazionale sui PICC-port

	CLOT Trial[8]	CATCH Trial[9]
Number of Patients	676	900
Study Design	Open-label, multicenter, RCT	Open-label, multicenter, RCT
LMWH Preparation*	Dalteparin	Tinzaparin
Mean Age	62 years dalteparin/63 years warfarin	59.7 years dalteparin/58.8 years warfarin
Tumor Types		
Breast	16%	9%
Colorectal	16%	13%
Lung	13%	12%
Genitourinary tract	13%	10%
Gynecologic system	10%	23%
Hematologic	10%	10%
Eastern Cooperative Oncology Group Score**		
0-1		
2		
Active Cancer Treatment***		
Metastatic Disease		
Time in Therapeutic Range (Warfarin Arm)		



	CLOT Trial[8]		CATCH Trial[9]	
	Dalteparin	**Warfarin**	**Tinzaparin**	**Warfarin**
Symptomatic VTE	7.9%	15.7%	6.9%	10%
Symptomatic DVT	4.1%	10.9%	2.7%	5.3%
Non-Fatal PE	2.4%	2.7%	0.7%	0.4%
Fatal PE	1.5%	2.1%	3.8%	3.8%
Major Bleeding	6.0%	4.0%	2.7%	2.4%
Death	39.0%	41.0%	33.4%	30.6%

CHEST Original Research
ANTITHROMBOTIC THERAPY

Clinical Outcome of Patients With Upper-Extremity Deep Vein Thrombosis*

Results From the RIETE Registry†

Francisco José Muñoz, MD, PhD; Patrick Mismetti, MD; Renzo Poggio, MD; Reina Valle, MD; Manuel Barrón, MD; María Cuil, MD; and Manuel Monreal, MD, PhD; for the RIETE Investigators

224 patients with CR-UEDVT were enrolled, (104 with cancer 46%)

87 patients (39%) were treated with VKA and 134 patients (61%) received LMWH.
During three months of follow-up,
7 patients (3.1%) experienced major bleeding,
4 patients (1.7 %) developed recurrent DVT,
6 patients (2.6%) had PE.

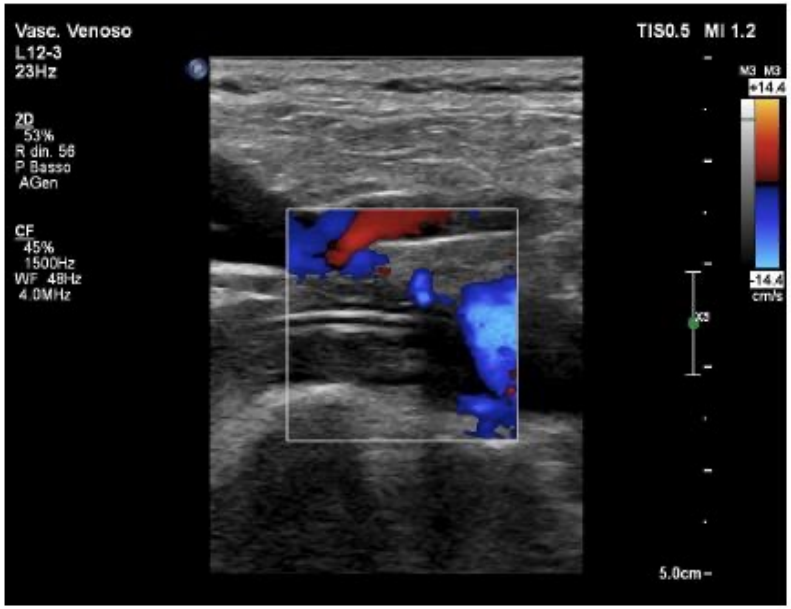
CENTRAL VENOUS CATHETER-RELATED DEEP VEIN THROMBOSIS

Thrombosis Canada

Thrombose Canada

egno Nazionale
PICC-port

PICC Day
azionale Annuale sui PICC



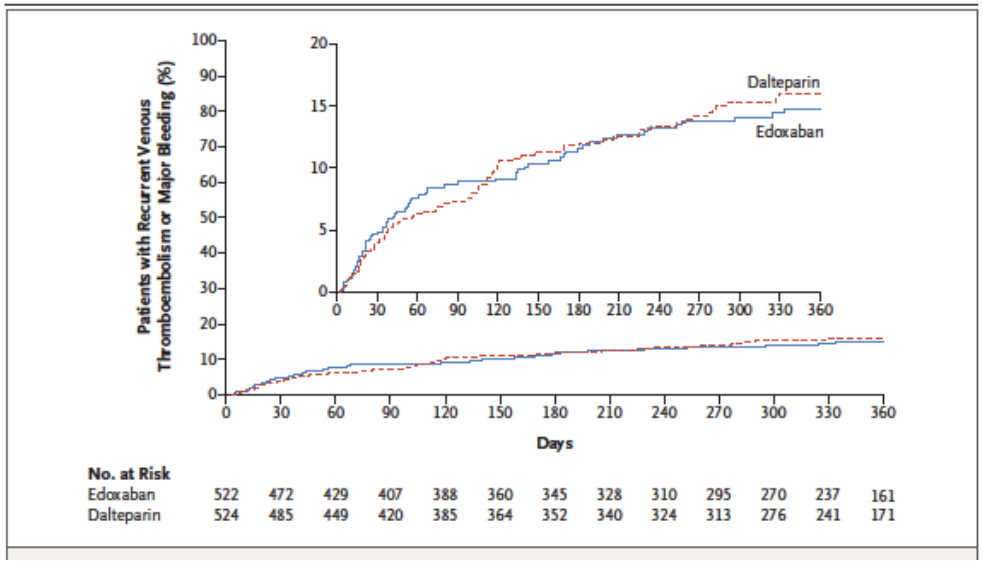
In those with a DVT involving only the brachial vein or thrombosis confined to the superficial veins, such as the cephalic or basilic vein, treatment with anticoagulation has not been studied.
In this situation, anticoagulation with either full dose anticoagulation or less than therapeutic doses of LMWH (e.g. approximately 50% of a treatment dose) to prevent progression of the thrombus while the catheter remains in place is reasonable.

Any role for the use of direct oral anticoagulants?

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Edoxaban for the Treatment of Cancer-Associated Venous Thromboembolism



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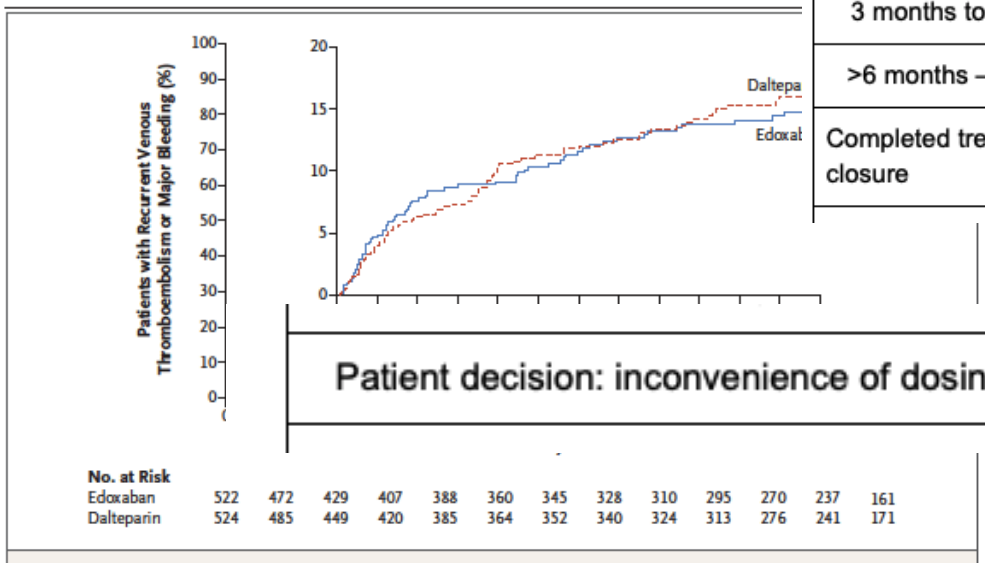

	Edoxaban (N=522)	Dalteparin (N=524)
LMWH lead-in days – median (IQR)	5.0 (5-6)	-
Drug exposure days - median (IQR)	211 (76-357)*	184 (85-341)*
<3 months – no. (%)	139 (26.6)	137 (26.1)
3 months to ≤6 months – no. (%)	80 (15.3)	102 (19.5)
>6 months – no (%)	303 (58.0)	285 (54.4)
Completed treatment for 12 months or until study closure	200 (38.3)	154 (29.4)
Patient decision: inconvenience of dosing	21 (4.0)	78 (14.9)

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A Single Center Retrospective Cohort Study Comparing Different Anticoagulants for the Treatment of Catheter-Related Thrombosis of the Upper Extremities in Women With Gynecologic and Breast Cancer

Angelo Porfidia[1,2], Giulia Cammà[1,2], Nicola Coletta[1,2], Margherita Pi[2,3]
Igor Giarretta[1], Andrea Lupascu[1,2], Giuseppe Scaletta[2,4], Enrica P
Paolo Tondi[2,5], Giovanni Scambia[2,4], Gabriella Ferrandina[2,4] and R

Oral direct anticoagulants?

	Edoxaban ($n = 22$)	Enoxaparin ($n = 21$)	Fondaparinux ($n = 31$)	*P*
Residual thrombosis, *n* (%)	1 (4.5)	1 (4.8)	5 (16.0)	0.25
Preservation of line function, *n* (%)	22 (100.0)	21 (100.0)	31 (100.0)	na
Recurrent VTE, *n* (%)	0 (0.0)	0 (0.0)	0 (0.0)	na
MB, *n* (%)	0 (0.0)	0 (0.0)	0 (0.0)	na
CRNMB, *n* (%)	0 (0.0)	2 (9.5)	1 (3.2)	0.27
Death, *n* (%)	0 (0.0)	0 (0.0)	0 (0.0)	na

CRNMB, clinically relevant non-major bleeding; MB, major bleeding; na, not available; VTE, venous thromboembolism.

A Single Center Retrospective Cohort Study Comparing Different Anticoagulants for the Treatment of Catheter-Related Thrombosis of the Upper Extremities in Women With Gynecologic and Breast Cancer

Angelo Porfidia[1,2], Giulia Cammà[1,2], Nicola Coletta[1,2], Margherita Bigossi[2,3], Igor Giarretta[1], Andrea Lupascu[1,2], Giuseppe Scaletta[2,4], Enrica Porceddu[2,5], Paolo Tondi[2,5], Giovanni Scambia[2,4], Gabriella Ferrandina[2,4] and Roberto Pola[1,2]*

Received: 12 February 2020 | Revised: 25 March 2020 | Accepted: 2 April 2020
DOI: 10.1002/ajh.25820

RESEARCH ARTICLE

AJH WILEY

Treatment of upper extremity deep vein thrombosis with apixaban and rivaroxaban

Damon E. Houghton[1] | Ana I. Casanegra[1] | Lisa G. Peterson[1] | Jordan Cochuyt[2] | David O. Hodge[2] | Danielle Vlazny[1] | Robert D. McBane[1] | David Froehling[1] | Waldemar E. Wysokinski[1]

Journal of Thrombosis and Thrombolysis (2020) 50:355–360
https://doi.org/10.1007/s11239-020-02044-4

Check for updates

Upper extremity deep vein thrombosis treated with direct oral anticoagulants: a multi-center real world experience

Angelo Porfidia[1] · Fabiana Agostini[1] · Igor Giarretta[1] · Diego Tonello[2] · Daniele Pastori[3] · Pasquale Pignatelli[3,4] · Angelo Santoliquido[1] · Michelangelo Sartori[5] · Gianfranco Lessiani[6] · Adriana Visonà[2] · Marco P. Donadini[7] · Roberto Pola[1]

Received: 14 January 2019 | Accepted: 5 April 2019
DOI: 10.1002/rth2.12208

METHODOLOGICAL ARTICLE

rpth

Apixaban for Routine Management of Upper Extremity Deep Venous Thrombosis (ARM-DVT): Methods of a prospective single-arm management study

Scott C. Woller MD | Scott M. Stevens MD | Stacy A. Johnson MD | Joseph R. Bledsoe MD | Brian Galovic MD | James F. Lloyd BS | Emily L. Wilson MS | Brent Armbruster BS | R. Scott Evans PhD

Clinical Therapeutics/Volume ∎, Number ∎, 2017

Rivaroxaban in the Treatment of PICC-Associated Upper Extremity Venous Thrombosis

Fenling Fan, MD, PhD[1,2,3]; Yuliang Zou, MD[4]; Songlin Zhang, MD[1]; Yushun Zhang, MD[1]; Beidi Lan, MD, PhD[1]; Qiang Song, MD[1]; Meili Pei, MD[4]; Lu He, MD[1]; Huili Wu, MD[5]; Yajuan Du, MD[1]; and Anthony M. Dart, FRCP, FRACP, DPhil, BA, BM, BCh[2,3],

Contents lists available at ScienceDirect

Thrombosis Research

journal homepage: www.elsevier.com/locate/thromres

Full Length Article

A prospective study of Rivaroxaban for central venous catheter associated upper extremity deep vein thrombosis in cancer patients (Catheter 2)

G.A. Davies [a,*], A. Lazo-Langner [b,c], E. Gandara [d], M. Rodger [d], V. Tagalakis [e], M. Louzada [b], R. Corpuz [b], M.J. Kovacs [b]

[a] University of Calgary, Calgary, AB, Canada
[b] Division of Hematology, Department of Medicine, Western University, London, ON, Canada
[c] Department of Epidemiology and Biostatistics, Western University, London, ON, Canada
[d] Division of Hematology, Department of Medicine, University of Ottawa-Ottawa Hospital, Ottawa, ON, Canada
[e] Division of Internal Medicine, Department of Medicine, Jewish General Hospital, McGill University, Montreal, QC, Canada

Materials and methods: Patients ≥18 years of age with active malignancy and symptomatic proximal UEDVT with or without pulmonary embolism (PE), associated with a CVC, were eligible.
Treatment included rivaroxaban 15 mg oral twice daily for 3 weeks, followed by 20 mg oral daily for 9 weeks. Patients were followed clinically for 12 weeks to assess for line function, recurrent VTE and bleeding.

Results: Seventy patients (47 women) were included, with mean age 54.1 years. The most common malignancy was breast cancer (41%).
Preservation of line function was 100% at 12 weeks.
The risk of recurrent VTE at 12 weeks was 1.43% (95% CI 0.25 to 7.66)
There were 11 bleeding events in 9 patients (12.85%, 95%CI 6.9 to 22.7), 7 major and 4 CRNMB

A Prospective Study of Apixaban for Central Venous Catheter Associated Upper Extremity Deep Vein Thrombosis in Cancer Patients: Catheter 3

Michael J. Kovacs, MD[1], Philip S. Wells, MD MSc, FRCPC[2], Marc A. Rodger, MDMSc[3], Marc Carrier, MD MSc, FRCPC[4], Erik Yeo, MD FACP, FRCPC[5], Judy A Kovacs, RN[6,], Alejandro Lazo-Langner, MD MSc, FRCPC[7]*

Due to the fact that in the Catheter 2 Study most bleeds occurred while taking 15 mg bid of Rivaroxaban, for this study, patients were treated with dalteparin, 200 IU/kg x 7days followed by Apixaban 5 mg po bid to complete 12 weeks.

We included 70 patients
One patient (1.4%) had a recurrent DVT in the same arm during the 3-month follow-up period. The 2 patient deaths were both due to underlying cancer.

There were 7 bleeding events in 6 patients, 3 major (2.9%) and 4 CRNMB (5.7%).

REGULAR ARTICLE

blood advances

Safety and efficacy of anticoagulant therapy in pediatric catheter-related venous thrombosis (EINSTEIN-Jr CVC-VTE)

A predefined analysis of the CVC-VTE cohort was performed.

126 children with symptomatic (n 76, 60%)or asymptomatic (n 50, 40%) CVC-VTE received either rivaroxaban(n 90)or standard anticoagulants(n 36).

There was no recurrent VTE (0%; 95% confidenceinterval[CI],0.0%-2.8%).
Three children had the principal safety outcome: none had major bleeding and 3 children had clinically relevant non major bleeding (2.4%;95%CI,0.7%-6.5%),all in the rivaroxaban arm.

ELSEVIER

Netherlands Journal of Medicine 50 (1997) 238–242

The Netherlands JOURNAL OF MEDICINE

III Convegno Nazionale sui PICC-port

XVI PICC Day

Convegno Nazionale Annuale sui PICC

Original article

Pulmonary embolism in deep venous thrombosis of the upper extremity: more often in catheter-related thrombosis

J.D.B. Kooij [a,*], F.M. van der Zant [b], E.J.R. van Beek [a], J.A. Reekers [a]

[a] Department of Radiology, Academic Medical Centre, G1-227, Meibergdreef 9, 1105 AZ Amsterdam, Netherlands
[b] Department of Nuclear Medicine, Academic Medical Centre, Meibergdreef 9, 1105 AZ Amsterdam, Netherlands

Received 1 October 1996; revised 27 January 1997; accepted 29 January 1997

17.0% (95% CI: 7-32)

› Thromb Haemost. 1994 Oct;72(4):548-50.

Pulmonary embolism in patients with upper extremity DVT associated to venous central lines--a prospective study

M Monreal [1], A Raventos, R Lerma, J Ruiz, E Lafoz, A Alastrue, J F Llamazares

15.1% (95% CI: 7-22)

neurocritical care society Neurocrit Care (2011) 15:454–460
DOI 10.1007/s12028-011-9554-3

ORIGINAL ARTICLE

The Clinical Significance of Peripherally Inserted Central Venous Catheter-Related Deep Vein Thrombosis

Jeffrey J. Fletcher · William Stetler · Thomas J. Wilson

479 lines were placed during the study period with 39 developing a symptomatic PRLVT (incidence rate = 8.1%).

Pulmonary embolus attributed to PICC-DVT occurred in 1.3% of line placements and 15% of symptomatic PICC-DVT

Journal of Thrombosis and Haemostasis, **13**: 2155–2160 DOI: 10.1111/jth.13131

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IN FOCUS

Central venous catheters and upper extremity deep vein thrombosis in medical inpatients: the Medical Inpatients and Thrombosis (MITH) Study

J. P. WINTERS, P. W. CALLAS, M. CUSHMAN, A. B. REPP and N. A. ZAKAI
University of Vermont College of Medicine and University of Vermont Medical Center, Burlington, VT, USA

Table 3 Odds ratio (95% CI) of venous thromboembolism with central venous catheters*

	Adjusted OR* (95% CI)			
	VTE (n = 299)	DVT (n = 180)	UEDVT (n = 91)	PE (n = 154)
CVC (24.7%)	2.2 (1.5, 3.2)	3.1 (1.9, 5.0)	[illegible]	[illegible]
PICC (8.7%)	2.9 (1.8, 4.7)	4.5 (2.6, 7.9)	13.0 (6.1, 27.6)	1.4 (0.8, 2.7)
CICC (12.7%)†	1.9 (1.2, 3.1)	2.0 (1.2, 20.5)	[illegible]	[illegible]
CVC present prior to hospitalization	0.9 (0.5, 1.5)	1.1 (0.6, 2.2)	1.4 (0.6, 3.3)	0.6 (0.3, 1.2)

Trombosi asintomatica

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THROMBOSIS AND HEMOSTASIS

CME Article

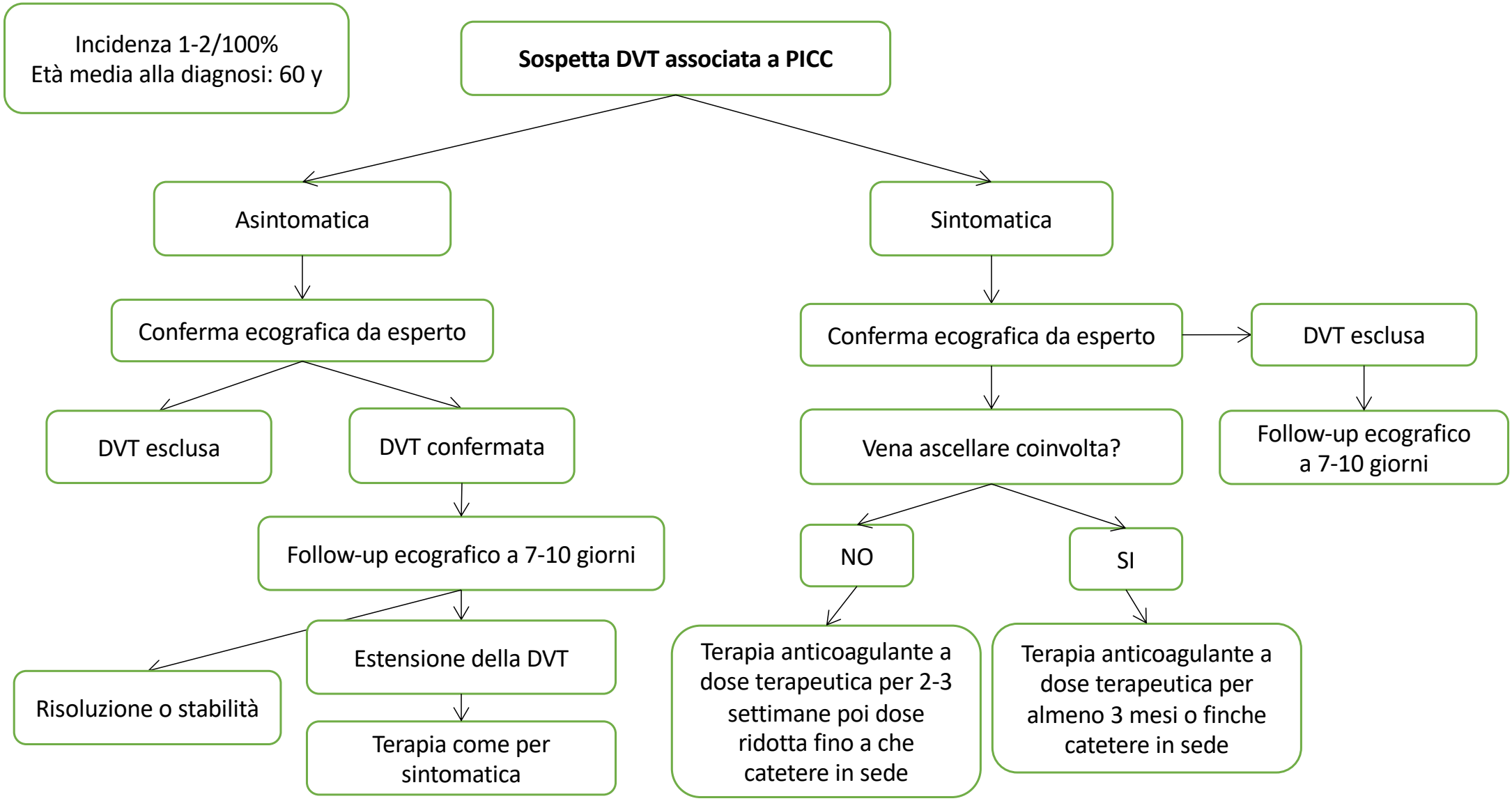
The natural history of asymptomatic central venous catheter–related thrombosis in critically ill children

Sophie Jones,[1-4] Warwick Butt,[1,5] Paul Monagle,[1-3] Timothy Cain,[6] and Fiona Newall[1-4,7]

Ultrasounds of 146 children determined a 21.9% incidence of acute CVC-related thrombosis.
Two children were symptomatic.

No radiological thrombosis extension or clinical embolization occurred at 2 year follow-up.

ROMA 2023
11-12 Dicembre


Incidenza 1-2/100%
Età media alla diagnosi: 60 y
Sospetta DVT associata a PICC
Asintomatica
Sintomatica
Conferma ecografica da esperto
DVT esclusa
DVT confermata
Follow-up ecografico a 7-10 giorni
Risoluzione o stabilità
Estensione della DVT
Terapia come per sintomatica
Conferma ecografica da esperto
DVT esclusa
Follow-up ecografico a 7-10 giorni
Vena ascellare coinvolta?
NO
SI
Terapia anticoagulante a dose terapeutica per 2-3 settimane poi dose ridotta fino a che catetere in sede
Terapia anticoagulante a dose terapeutica per almeno 3 mesi o finche catetere in sede

GAVeCeLT
Gli Accessi Venosi Centrali a Lungo Termine

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Bundle GAVeCeLT per la prevenzione della CRT:

a) Appropriata scelta della vena
b) Minimo trauma durante la venipuntura
c) Appropriata posizione della punta
d) Fissaggio appropriato

Early-CRT
(with-in 30 days from implantation)

- Scelta inappropriata della vena
- Tecnica di inserzione inappropriata
- Malposizione della punta
- Fissaggio inappropriato

RIDUCIBILI UTILIZZANDO UN BUNDLE DI INSERZIONE

Late-CRT
(beyon 30 days from implantation)

- Neoplasia e/o chemioterapia
- Alterazioni congenite/acquisite della coagulazione

ELIMINABILI SOLO EVITANDO L'IMPIANTO DEL CVC

The risk of thrombosis is related to
the ratio between the **diameter of the vein**
(visible only with the echo)
and the **diameter of the catheter**
(which is decided by the operator)

CHEST Original Research
CRITICAL CARE

The Effect of Catheter to Vein Ratio on Blood Flow Rates in a Simulated Model of Peripherally Inserted Central Venous Catheters

Thomas P. Nifong, MD; and Timothy J. McDevitt, PhD

Measure	Unobstructed	Inner Wire 0.67 mm (2F)	Inner Wire 1.33 mm (4F)	Inner Wire 2.0 mm (6F)	Inner Wire 2.6 mm (8F)
Outer tube, 4 mm					
D_{cath}/D_{cyl}	0	0.16	0.32	0.48	0.64
Average flow, mL/min	17	12	[illegible]	[illegible]	1.2
Relative flow, %	100	69	40	20	6.9
SD, mL/min	0.42	0.11	0.15	0.03	0.016
P value[a]	…	3.7×10^{-6}	6.8×10^{-11}	3.8×10^{-7}	
Outer tube, 5 mm					
D_{cath}/D_{cyl}	0	0.13	0.25	0.38	
Average flow, mL/min	41	33	25	17	
Relative flow, %	100	81	60	42	
SD, mL/min	0.15	0.75	0.70	0.16	
P value[a]	…	1.0×10^{-5}	8.5×10^{-8}	9.0×10^{-6}	
Outer tube, 6 mm					
D_{cath}/D_{cyl}	0	0.11	0.21	0.32	
Average flow, mL/min	81	52	47	39	
Relative flow, %	100	64	58	49	36
SD, mL/min	0.98	0.58	0.40	2.7	0.75
P value[a]	…	5.3×10^{-10}	1.0×10^{-6}	.0028	6.7×10^{-4}

D_{cath} = diameter of the catheter; D_{cyl} = diameter of the cylinder

IN ORDER TO REDUCE THE RISK OF CRT, THE OUTER DIAMETER OF THE CATHETER SHOULD NOT EXCEED 1/3 OF THE INNER DIAMETER OF THE VEIN

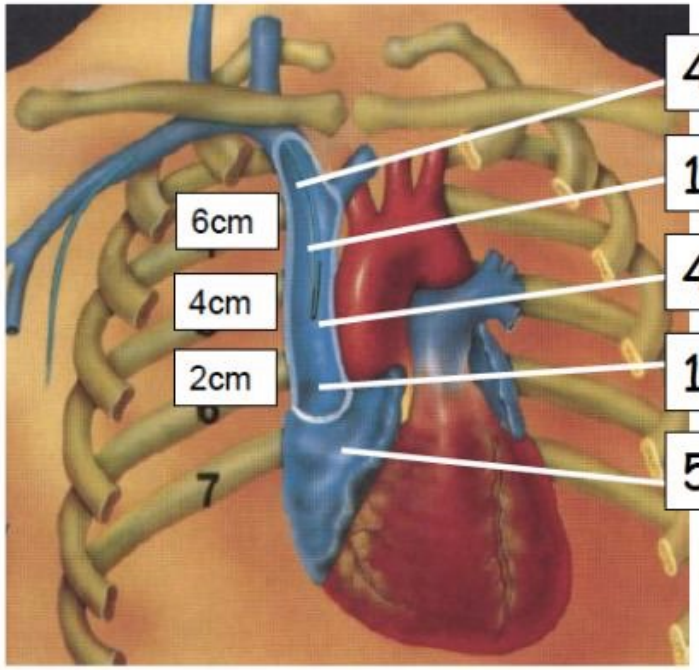
Corretta posizione della punta

Support Care Cancer (2005) 13:325–331
DOI 10.1007/s00520-004-0723-1

ORIGINAL ARTICLE

Jo Caers
Christel Fontaine
Vincent Vinh-Hung
Johan De Mey
Gerrit Ponnet

Catheter tip position as a risk factor for thrombosis associated with the use of subcutaneous infusion ports



Petersen Am J Surg 1999
Luciani, Radiology 2001
Puel, Cancer 2003
Melina Verso, J Clin Oncol 2003
Caers, Support Care Cancer 2005

TROMBOEMBOLISMO VENOSO
NEI PAZIENTI CON TUMORI SOLIDI

LINEE GUIDA 2020

Qualità globale delle prove	Raccomandazione clinica	Forza della raccomandazione
Alta	Nei pazienti neoplastici portatori di catetere venoso centrale, l'impiego routinario di una profilassi con EBPM non deve essere preso in considerazione (62).	**Negativa forte**
COI : Nessun conflitto dichiarato		

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ISTH

Recommendations

1 Use of anticoagulation for routine prophylaxis of CRT is not recommended [Grade 1A].
Values and preferences: bleeding risk with anticoagulants.

2 Catheters should be inserted on the right side, in the jugular vein, and the distal extremity of the central catheter should be located at the junction of the superior vena cava and the right atrium [Grade 1A].

CE Test Material

Catheter-Related Central Venous Thrombosis: The Development of a Nationwide Consensus Paper in Italy

Costantino Campisi, MD, Roberto Biffi, MD, and Mauro Pittiruti, MD
on behalf of the GAVeCeLT Committee for the Consensus

Conclusions of the Consensus

- Although some open-label, early trials suggested a benefit of oral, low-dose daily warfarin or daily subcutaneous dose of LMWHs, more recent randomized, double-blind, placebo-controlled, and sufficiently powered trials did not find any advantages for either of these prevention strategies.
- The choice to start a prophylaxis of venous thromboembolic events in all oncology patients bearing a CVC, either with LMWHs or with minidose warfarin, remains unsupported by evidence-based medicine.
- GAVeCeLT suggests considering prophylaxis with a daily single dose of LMWH 100 IU/kg only in high-risk population (including those who have a family history or previously suffered from idiopathic venous thrombotic events of the upper or lower vena cava district).

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journal homepage: www.elsevier.com/locate/thromres

Letter to the Editors-in-Chief

Efficacy and safety of apixaban for primary prevention of thromboembolism in patients with cancer and a central venous catheter: A subgroup analysis of the AVERT Trial

ARTICLE INFO

ABSTRACT

A total of 217 patients had a CVC and were included in the subgroup analyses 126 and 91 patients receiving apixaban or placebo, respectively.
VTE occurred in 6 (4.8%) patients in the apixaban group and 17 (18.7%) patients in the placebo group (HR 0.26; 95% CI, 0.14–0.47; $p < 0.0001$).

Major bleeding occurred in 2 (1.6%) patients in the apixaban group and 2 (2.2%) patients in the placebo group (HR 0.69; 95% CI, 0.20–2.35; $p = 0.556$).

Conclusioni (1)

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- La rimozione del catetere non è indicata se il catetere...
  - è ancora utile
  - è ancora ben funzionante
  - la sua punta sia posizionata correttamente
  - non è infetto
- Le indicazioni per la rimozione del catetere sono:
  - Sintomi locali che peggiorano durante il trattamento
  - Catetere non utile e/o mal posizionato e/o infetto e/o malfunzionante
- La rimozione del catetere deve essere eseguita:
  - Dopo almeno 72 ore di trattamento (PICC e porte PICC)
  - Dopo almeno una settimana di trattamento (CICC, FICC, porte toraciche)
  - Sotto il controllo ecografico

Conclusioni (2)

- La CRT è un fenomeno fisiopatologico, del tutto inevitabile durante qualsiasi procedura di accesso venoso
- Gli esperti VAD possono ridurre l'incidenza della CRT seguendo i protocolli esistenti
- Solo la CRT sintomatica è clinicamente rilevante e deve essere trattata
- La CRT asintomatica può essere gestita mediante uno stretto follow-up
- Il trattamento principale per la CRT è l'EBPM per almeno 3 mesi, tuttavia i DOAC sembrano avere efficacia e sicurezza simili con una maggiore compliance del paziente
- Una profilassi anticoagulante nei pazienti con PICC non è indicata in maniera routinaria ma può essere presa in considerazione in casi selezio ati

III Convegno Nazionale

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