La gestione perioperatoria della terapia anticoagulante - antaggregante

Con particolare riferimento all'impianto di CIEDs

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CHEST Supplement

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

Perioperative Management of Antithrombotic Therapy

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

James D. Douketis, MD, FCCP; Alex C. Spyropoulos, MD, FCCP; Frederick A. Spencer, MD; Michael Mayr, MD; Amir K. Jaffer, MD, FHM; Mark H. Eckman, MD; Andrew S. Dunn, MD; and Regina Kunz, MD, MSc (Epi)

Raccomandazioni basate sul consenso, ma tutte con livello di evidenza C

Background

- Incidenza di tromboembolie peri-intervento in paz con f.a. senza eparina: 0.7-1.7%
- Trombosi di protesi valvolare: mortalità 15%
- Stroke embolico: mortalità o grave deficit neurologico nel 70%
- La terapia anticoagulante può causare serie emorragie
- una emorragia postoperatoria ritarda la ripresa della TAO esponendo il pz a ulteriore rischio tromboembolico

- Valutazione del rischio emorragico, legato al tipo di intervento

- Valutazione del rischio tromboembolico

Interventi a basso rischio:

- Interventi sulla cute
- Estrazioni dentarie
- Chirurgia oculare(cataratta)

Non è richiesta sospensione della TAO

Interventi ad alto rischio emorragico,che impongono la sospensione della terapia anticoagulante

Chir. maggiore ortopedica

cardiaca

vascolare

urologica

neurochirurgia

Altri interventi comportano un rischio di emorragie se eseguiti in corso di terapia anticoagulante, fra cui l'impianto di CIEDs…

Surgeries and procedures associated with an increased bleeding risk during perioperative antithrombotic drug administration include the following:

- Pacemaker or implantable cardioverter-defibrillator device implantation in which separation of infraclavicular fascial layers and lack of suturing of unopposed tissues within the device pocket may predispose to hematoma development[35-38]

Stratificazione del rischio trombotico ACCP

Table 2—*Suggested Patient Risk Stratification for Perioperative Arterial or Venous Thromboembolism*

Risk Stratum	Indication for VKA Therapy		
	Mechanical Heart Valve	Atrial Fibrillation	VTE
High	Any mitral valve prosthesis Older (caged-ball or tilting disc) aortic valve prosthesis Recent (within 6 mo) stroke or transient ischemic attack	$CHADS_2$ score of 5 or 6 Recent (within 3 mo) stroke or transient ischemic attack, Rheumatic valvular heart disease	Recent (within 3 mo) VTE Severe thrombophilia (*eg*, deficiency of protein C, protein S or antithrombin, antiphospholipid antibodies, or multiple abnormalities)
Moderate	Bileaflet aortic valve prosthesis and one of the following: atrial fibrillation, prior stroke or transient ischemic attack, hypertension, diabetes, congestive heart failure, age > 75 yr	$CHADS_2$ score of 3 or 4	VTE within the past 3 to 12 mo Nonsevere thrombophilic conditions (*eg*, heterozygous factor V Leiden mutation, heterozygous factor II mutation) Recurrent VTE Active cancer (treated within 6 mo or palliative)
Low	Bileaflet aortic valve prosthesis without atrial fibrillation and no other risk factors for stroke	$CHADS_2$ score of 0 to 2 (and no prior stroke or transient ischemic attack)	Single VTE occurred > 12 mo ago and no other risk factors

*$CHADS_2$ = Congestive heart failure-Hypertension-Age-Diabetes-Stroke.

ACCP:regime terapeutico suggerito

- Alto rischio: bridging con LMWH (a dose piena) o UFH

- Rischio moderato: strategia individualizzata caso per caso
- Basso rischio: no-bridging alla sospensione del warfarin

Tempistica del bridging

- Stop Warfarin 5 gg prima; INR il g. dell'intervento non deve essere > 1.5
- Ultima somministrazione di LMWH:

  24 h prima, metà della dose giornaliera
- Eparina ev: stop 4 h prima dell'intervento

Tempistica del bridging

ripresa LMWH o UFH:

- 24 h dopo (se intervento di chirurgia minore)
- 48-72 h dopo se alto rischio emorragico

sempre dopo verifica di avvenuta emostasi

Tempistica del bridging

- Ripresa del warfarin: la sera dell'intervento o la mattina dopo, se l'emostasi è adeguata

Vascular Medicine

Standardized Low–Molecular-Weight Heparin Bridging Regimen in Outpatients on Oral Anticoagulants Undergoing Invasive Procedure or Surgery

An Inception Cohort Management Study

V. Pengo, MD; U. Cucchini, MD; G. Denas, MD; N. Erba, MD; G. Guazzaloca, MD; L. La Rosa, MD; V. De Micheli, MD; S. Testa, MD; R. Frontoni, MD; D. Prisco, MD; G. Nante, MD; S. Iliceto, MD; for the Italian Federation of Centers for the Diagnosis of Thrombosis and Management of Antithrombotic Therapies (FCSA)

Strategia proposta dalla federazione italiana Centri TAO:

- Pz ad alto rischio trombotico: LMWH 70 U/Kg x 2 /die.
- Pz a basso rischio: nadroparina 57 U/Kg /die oppure enoxaparina 4000 U /die.

Circulation. 2009;119:2920-2927

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Schema del bridging

Day -5 (prior to procedure):
Stop OAT

↓

Day -4 /-3 (prior to procedure):
Start LMWH according to Protocol A or B, on day -4 if the OA is acenocoumarol, on day -3 if it is warfarin.

↓

Day -1 (prior to procedure):
Administer last dose of LMWH at least 12 hours before the procedure

↓

Day 0 (day of procedure):
• Check INR; if INR>1.5 consider postponing the procedure

↓

Day +1 / +2 (post procedure):
Resume OAT at pre-procedure dose + 50% boost dose;
Resume LMWH at pre-procedure dose on *day +1* (at least 12h after the procedure) or *day +2* according to haemostasis adequacy

↓

Day +3 / +5 (post procedure):
If haemostasis is adequate continue OAT at the usual pre-procedure dose
Continue LMWH

↓

Day +6 (post procedure):
Check INR and stop LMWH if INR is therapeutic
Continue OAT at usual pre-procedure dose

Circulation. 2009;119:2920-2927

Ma l'utilità del bridging è oggetto di discussione…

Perioperative management of Warfarin therapy:
to bridge or not to bridge,that is the question.

Douketis JD

Mayo clin Proc June 2008;83:628

Perioperative Management of Anticoagulation in Patients Undergoing Cardiac Rhythm Devices Procedures; A Bridge to Nowhere ?

Charles J.Love

PACE 2010

TAO e impianto di PM/ICD

L'ematoma della tasca può prolungare l'ospedalizzazione e predispone a infezione.

Incidenza:

- 2% in assenza di t. anticoagulante
- 4% in pz che sospendono TAO
- 12-23% se TAO è sostituita da UFH

Molti studi indicano la ripresa di LMWH dopo l'intervento e la doppia antiaggregazione quale causa maggiore degli ematomi

Incidenza di ematoma della tasca e di tromboembolie perioperatori nell'impianto di CIEDs:

studi retrospettivi

CHEST ONLINE

Pocket Hematoma After Pacemaker or Implantable Cardioverter Defibrillator Surgery*: Influence of Patient Morbidity, Operation Strategy, and Perioperative Antiplatelet/Anticoagulation Therapy

Uwe K. H. Wiegand, Dominik LeJeune, Frank Boguschewski, Hendrik Bonnemeier, Frank Eberhardt, Heribert Schunkert and Frank Bode

Chest 2004;126;1177-1186
DOI 10.1378/chest.126.4.1177

Ematoma: 4.9% sull'intera casistica di 3164 pazienti

2.5% no terapia/lmwh low-dose

2.9% ASA

21% ASA+Tienop.

2.9 % warf->lmwh low dose

11% warf-> lmwh full dose

Stroke: 0.16%

Wiegand, Chest 2004

Tischenko

Am Heart J 2009;158:252

	on Warf.*	controlli	bridged
	117	117	38
Ematoma %	7.7	4.3	23.7

No tromboembolie,tamponamento, emotorace

* INR < 3

Robinson

PACE 2009;32:378

149 pz in warfarin, bridged to full-dose LMWH:

Ematoma %	
8-9%	senza LMWH postop.
22-29 %	se LMWH, iniziata 3 gg dopo

n° 2 stroke: 1in pz non trattato con LMWH per IRC

1 dopo stop warfarin per ematoma

Cardiac Resynchronization Therapy Device Implantation in Patients with Therapeutic International Normalized Ratios

Ghanbari H, PACE 2010;33:400

123 pz sottoposti a impianto di CRT, in TAO

	incidenza di ematoma	
	on Warf	bridge UFH*
High risk	5%	20%
Low risk:	stop W, no bridge:	4%

*: restart 6 h post surgery

Ghanbari H, PACE 2010;33:400

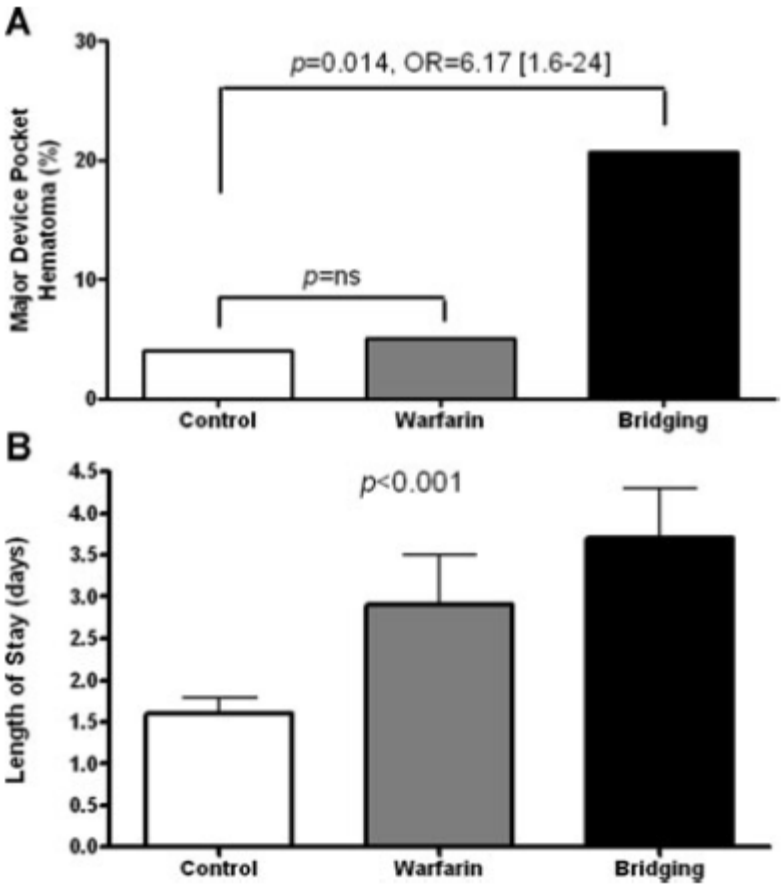

Figure 2. *Differences in major device pocket hematoma (Panel A) and length of stay (Panel B) according to the different anticoagulation protocols.*

Ematomi più frequenti in pz con protesi mitralica (20%);
12% dopo int.di upgrading vs 6.25 primo impianto (NS)

Precauzioni prese:
INR <3, puntura ascellare,accurata emostasi

Nessun caso di perforazione/tamponamento (caution)

Continuing warfarin therapy is superior to interrupting warfarin with or without bridging anticoagulation therapy in patients undergoing pacemaker and defibrillator implantation

Imdad Ahmed, MD,[†‡] Elie Gertner, MD,[†‡] William B. Nelson, MD, PhD,[*†‡] Chad M. House, BS, RDCS,[‡] Ranjan Dahiya, MD,[*†‡] Christopher P. Anderson, MPH,[‡] David G. Benditt, MD, FHRS,[¶] Dennis W.X. Zhu, MD[*†‡]

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Table 3 INR level and perioperative hemorrhagic and thromboembolic complications in all patients

Outcome	Continued warfarin (n = 222)	Bridging (n = 123)	Anticoagulation withheld (n = 114)
Hematoma	1 (0.45%)	7 (5.7%) *P* = .004	2 (1.75%) *P* = .26
Transient ischemic attack	0	1 (0.8%) *P* = .35	4 (3.5%) *P* = .01
Mean INR (± SD)	2.57 ± 0.49	1.33 ± 0.20	1.35 ± 0.32
INR range	1.5–4.7	1.1–1.7	1.0–1.6

Heart Rhythm 2010;7:745

No Increased Bleeding Events with Continuation of Oral Anticoagulation Therapy for Patients undergoing Cardiac Device Procedure

Hung-Kei Li PACE 2011;34:868

	stop W	on W	bridge
n.	243	324	199
Ematoma	2.1%	3.7%	7%
T.embolie (n)	-	1	1
Trasfusioni (n)	-	-	5
Revisione tasca	-	-	3

Ematoma 10% se INR>2.5, 5.6% se ASA+W

The Relationship betweenWarfarin,Aspirin,and Clopidogrel Continuationin the Peri-procedural Period and the Incidence of Hematoma Formation after Device Implantation

THAL S et al PACE 2010; 33:385

In totale 7 ematomi (3.5%), 4 revisioni, così distribuiti:

	Warf	ASA	CLOP.	ASA+ CLOP
pz (n)	58	112	23	20
ematomi (n)	1	1	-	5 (3 rev.)

Incidenza di ematomi/tromboembolie. perioperatori nell'impianto di CIEDs:

2 studi prospettici, di piccole dimensioni, non conclusivi

European Heart Journal (2009) 30, 1880–1884
doi:10.1093/eurheartj/ehp194

CLINICAL RESEARCH
Arrhythmia/electrophysiology

Preparation for pacemaker or implantable cardiac defibrillator implants in patients with high risk of thrombo-embolic events: oral anticoagulation or bridging with intravenous heparin? A prospective randomized trial

Jose M. Tolosana[1], Paola Berne[1], Lluis Mont[1]*, Magda Heras[1], Antonio Berruezo[1], Joan Monteagudo[2], David Tamborero[1], Begoña Benito[1], and Josep Brugada[1]

n.101 high-risk pts in TAO randomizzati:

	on W*	bridge con UFH	P
	50	51	
Ematoma	8%	7.8%	NS
Revisione	1.9%	2%	NS
Degenza gg	2	5	< 0.001

* INR 2±0.3

Heart Rhythm
Volume 8, Issue 4 , Pages 536-540, April 2011

Continuation of warfarin during pacemaker or implantable cardioverter-defibrillator implantation: A randomized clinical trial

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Results

We studied 100 patients (average age 70.8 years, 21% female, mean body mass index 28.4) who underwent 64 ICD and 36 PPM implantations. Fifty patients were assigned to continue warfarin. The randomized groups were well matched. Among patients randomized to warfarin interruption, there were two pocket hematomas, one pericardial effusion, one transient ischemic attack, and one patient who developed heparin-induced thrombocytopenia. No events were noted among patients continuing warfarin ($P = .056$).

Conclusions

While the results were not statistically significant, there was a trend toward reduced complications in patients randomized to warfarin continuation. This strategy should be considered in patients undergoing PPM or ICD implantation.