ETV tras hemorragia intacraneal

Dr. Lobo. *H Txagorritxu*
Dr. Nieto. *H Virgen de la Luz*
Dr. Monreal. *H Trias i Pujol*

- **Hemiplejía por HIC (15 d)**
- **Disnea y datos de TVP**

Venous thromboembolism prophylaxis and treatment in patients with acute stroke and traumatic brain injury

Mervyn D.I. Vergouwen[a], Yvo B.W.E.M. Roos[a] and Pieter W. Kamphuisen[b]

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Current Opinion in Critical Care 2008, 14:149–155

Purpose of review
Patients with acute stroke and traumatic brain injury are at risk to develop venous thromboembolism. This review analyzes the available literature to propose guidelines for the prevention and treatment of venous thromboembolism in these groups of patients.
Recent findings
In acute ischemic stroke, low-dose low-molecular-weight heparin has the best benefit–risk ratio to prevent venous thromboembolism. Patients with primary intracerebral hemorrhage and traumatic brain injury should receive intermittent pneumatic compression, followed by low-dose low-molecular-weight heparin or unfractioned heparin 3–4 days after stroke onset or 24 h after injury or surgery, respectively, and after cessation of bleeding. Concerning treatment, in patients with deep-vein thrombosis lower doses of heparin are indicated to prevent pulmonary embolism, and a vena cava filter should be considered. In patients with pulmonary embolism, treatment could be more aggressive, because of a high mortality risk.
Summary
Adequate prevention of venous thromboembolism with intermittent pneumatic compression or pharmacological prophylaxis is important. The best treatment of venous thromboembolism remains unclear. In case of pulmonary embolism, more aggressive treatment is warranted.

Keywords
acute stroke, anticoagulant treatment, traumatic brain injury, venous thromboembolism

Curr Opin Crit Care 14:149–155

1070-5295

..”Data on treatment of VTE in patients with intracranial hemorrhage are extremely scarce”.

Hemorragia Intracerebral

- El 10-15% de los ACV
- Mortalidad a 30 días del 35-52%
  - la mitad en los primeros dos días.
- Tendencia a recidiva espontane
- Solo 20% autónomos a los 6 me

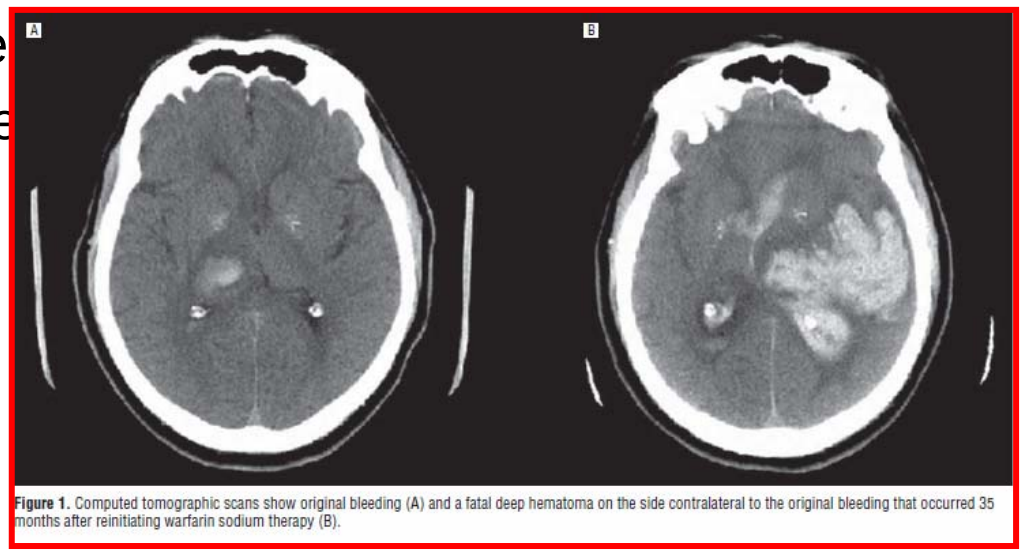

Figure 1. Computed tomographic scans show original bleeding (A) and a fatal deep hematoma on the side contralateral to the original bleeding that occurred 35 months after reinitiating warfarin sodium therapy (B).

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Journal of the Neurological Sciences

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Deep venous thrombosis after acute intracerebral hemorrhage ☆

Toshiyasu Ogata [a,*], Masahiro Yasaka [a], Yoshiyuki Wakugawa [a], Tooru Inoue [b], Setsuro Ibayashi [c], Yasushi Okada [a]

[a] Departments of Cerebrovascular Disease, National Hospital Organization Kyushu Medical Center, Fukuoka, Japan
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Received 1 November 2007; received in revised form
Available online 13 J

Abstract

Background: We evaluated the incidence of deep venous thrombosis (DVT)
DVT.
Methods: We enrolled 52 patients with acute ICH between June 2005 and Se
deficit, hemorrhage size and laboratory data, and performed ultrasonography
Results: DVT was detected a total of 21 patients (40.4%) after two weeks. F
severe disturbance of consciousness (p=0.020) and paralysis (p=0.035) or
Health Stroke Scale (NIHSS) score was significantly higher in patients w
diameter of ICH were more likely to develop DVT (p=0.021). D-dimer va
than those without (p=0.002). Logistic regression analysis indicated that bo
for the occurrence of DVT.
Conclusions: We need be aware that acute ICH patients with severe neur
developing DVT.

Keywords: Deep venous thrombosis; Intracerebral hemorrhage; Neurological finding

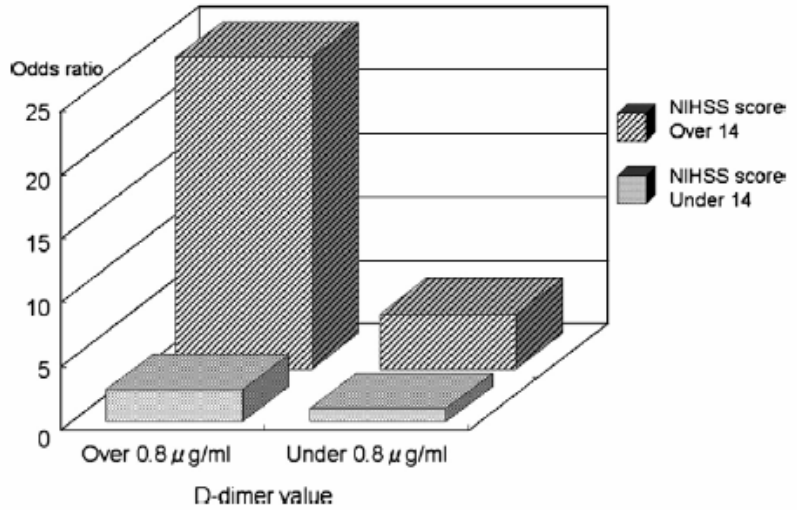

Fig. 1. Odds ratio for the occurrence of DVT in patients with NIHSS score under 14 and D-dimer value under 0.8 μg/ml. DVT denotes deep vein thrombosis; NIHSS, National Institutes of Health and Stroke Scale.

Supplement

ANTITHROMBOTIC AND THROMBOLYTIC THERAPY 8TH ED: ACCP GUIDELINES

Prevention of Venous Thromboembolism*

American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (8th Edition)

William H. Geerts, MD, FCCP; David Bergqvist, MD, PhD; Graham F. Pineo, MD; John A. Heit, MD; Charles M. Samama, MD, PhD, FCCP; Michael R. Lassen, MD; and Clifford W. Colwell, MD

including active cancer, previous VTE, sepsis, acute neurologic disease, or inflammatory bowel disease, we recommend thromboprophylaxis with LMWH (Grade 1A), LDUH (Grade 1A)**, or fondaparinux (Grade 1A)**

AHA/ASA Guideline

Guidelines for the Management of Spontaneous Intracerebral Hemorrhage in Adults

2007 Update

A Guideline From the American Heart Association/American Stroke Association Stroke Council, High Blood Pressure Research Council, and the Quality of Care and Outcomes in Research Interdisciplinary Working Group

The Ameri

Joseph Broder
Edward Feldman
Derk Krieger,
Christo

Purpose—The aim of this s
treatment of acute spontar
Methods—A formal literatur
search were complement
synthesized with the use
grading algorithm was use
5 expert peer reviewers a
guideline be fully updated
Results—Evidence-based gu
increased arterial blood pressure and intracranial pressure, the treatment of medical complications of intracerebral hemorrhage, and the prevention of recurrent intracerebral hemorrhage. Recent trials of recombinant factor VII to slow initial bleeding are discussed. Recommendations for various surgical approaches for treatment of spontaneous intracerebral hemorrhage are presented. Finally, withdrawal-of-care and end-of-life issues in patients with intracerebral hemorrhage are examined. (***Stroke.*** **2007;38:2001-2023.**)

1. Los pacientes con HIC primaria y hemiparesia/hemiplejia deberán recibir CNI para prevenir ETV (*Class I, Level of Evidence B*)

2. Tras 3-4 días y documentado el cese de la hemorragia, puede considerarse la adición de HBPM o HNF (*Class IIb, Level of Evidence B*)

Antithrombotic Therapy for Venous Thromboembolic Disease*

American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (8th Edition)

1.13.2. For patients with acute proximal DVT, if anticoagulant therapy is not possible because of the risk of bleeding, we recommend plac
(Gra

4.6.2. In patients with acute PE, if anticoagulant therapy is not possible because of risk of bleeding, we recommend placement of an IVC filter (Grade 1C).

Journal of Thrombosis and Haemostasis, 4: 2367–2372

Table 1 Clinical characteristics and 3 month outcome of the 12 294 patients with venous thromboembolism (VTE), according to the site of recent bleeding

	Gastrointestinal (GI), $n = 116$	Intracranial $n = 94$	Other, $n = 96$	No recent bleeding, $n = 11\,988$
Clinical characteristics				
Gender (males)	56 (48%)	49 (52%)	44 (46%)	5990 (50%)
Age [years (mean ± SD)]	71 ± 15†	66 ± 13	63 ± 19	66 ± 17
Underlying diseases				
Creatinine levels > 1.2 mg dL^{-1}	22 (19%)	5 (5.3%)*	13 (14%)	1675 (14%)
Chronic lung disease	19 (18%)	6 (6.4%)	9 (9.4%)	1345 (13%)
Chronic heart failure	11 (10%)	3 (3.2%)	8 (8.3%)	719 (6.8%)
Risk factors for VTE				
Cancer	38 (33%)†	7 (7.4%)†	37 (39%)†	2415 (20%)
Surgery < 2 months	30 (26%)†	29 (31%)†	32 (33%)†	1541 (13%)
Prior VTE	12 (10%)	6 (6.4%)†	11 (11%)	1947 (16%)
Clinical presentation				
Symptomatic PE	52 (45%)	43 (46%)	47 (49%)	5209 (43%)
Time elapsed since bleeding				
Mean days ± SD	17 ± 10	20 ± 9	13 ± 10	
Median (days)	15	20	11	
Initial therapy				
UFH	17 (15%)*	6 (6.4%)	15 (16%)*	984 (8.2%)
Mean UFH dose (IU kg^{-1} d^{-1})	332 ± 72	262 ± 100	345 ± 93	340 ± 109
LMWH	98 (84%)*	83 (88%)	78 (81%)†	10 853 (91%)
Mean LMWH dose (IU kg^{-1} d^{-1})	162 ± 52†	136 ± 66†	166 ± 52†	182 ± 38
IVC filter	16 (14%)†	28 (30%)†	10 (10%)†	188 (1.6%)
Time to initial therapy				
Mean ± SD (days)	0.1 ± 0.5	0.4 ± 3.3	0.3 ± 3.6	0.04 ± 0.6
Median (days)	0	0	0	0
Long-term therapy				
AVK drugs	50 (43%)†	23 (24%)†	43 (45%)†	8481 (71%)
LMWH	49 (42%)†	61 (65%)†	41 (43%)†	2953 (25%)
Three-month outcome				
Major bleeding	12 (10%)†	0	7 (7.3%)†	276 (2.3%)
Fatal bleeding	7 (6.0%)†	0	1 (1.0%)	61 (0.5%)
Recurrent VTE	3 (2.6%)	5 (5.3%)	3 (3.1%)	321 (2.7%)
Overall mortality	20 (17%)†	4 (4.3%)	19 (20%)†	964 (8.0%)

Comparisons with patients with no recent bleeding: *$P < 0.05$; †$P < 0.01$; ‡$P < 0.001$. PE, pulmonary embolism; UFH, unfractionated heparin; LMWH, low-molecular-weight heparin; SD, standard deviation; IVC, inferior vena cava; AVK, anti-vitamin K drugs.

ORIGINAL CONTRIBUTION

Restarting Anticoagulation Therapy After Warfarin-Associated Intracerebral Hemorrhage

Daniel O. Claassen, MD; Noojan Kazemi, MBBS; Alexander Y. Zubkov, MD, PhD; Eelco F. M. Wijdicks, MD; Alejandro A. Rabinstein, MD

Patients restarted warfarin therapy after a median of 10 (range, 7-28) days.

Table 1. Clinical Characteristics[a]

Variable	Restarted Group (n = 23
Age, mean (range), y	70.8 (45-
Sex, No. M/F	13/10
Reason for anticoagulation	
Atrial fibrillation	9 (39)
Valve replacement	10 (44)
Thrombus/DVT	3 (13)
Other[c]	1 (4)
Hypertension treated with medication	19 (83)
Diabetes mellitus	5 (22)
Coronary artery disease/CHF	5 (22)
Previous stroke	7 (30)
Concomitant neoplasm	1 (4)

thromboembolic events.

Table 3. Follow-up Data in 48 Patients With

	Restarted Group	Nonrestarted Group
Mean follow-up, mo	49.8	36.1
Mean mRS score		
At discharge	3.1	2.6
At latest follow-up	4.6	3.7
Mean time to death, mo	55.6	21.8
End point events, No. of patients		
Thromboembolic stroke	0	3
Thromboembolism, nonstroke	0	2
Nonembolic ischemic stroke	2	2
Nontraumatic ICH	1	0
Traumatic ICH	2	0
GI hemorrhage	2	2
Myocardial infarction	4	6

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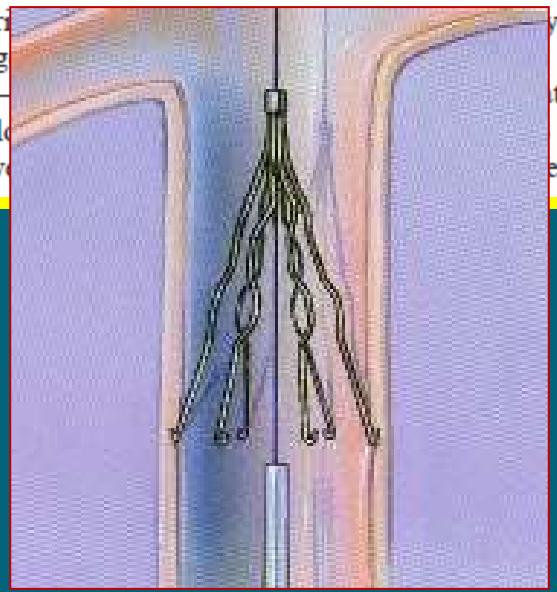
Anticoagulation or Inferior Vena Cava Filter Placement for Patients With Primary Intracerebral Hemorrhage

No hay datos experimentales para sustentar ningún tipo de recomendación



Definition of Inadequate Cardiopulmonary Reserve in Patients With Suspected PE in the Study of Hull et al[31]

Inadequate cardiopulmonary reserve defined by any of the following:

- Hypotension (systolic blood pressure <90 mm Hg)
- Syncope
- Right ventricular failure
- Pulmonary edema
- Acute tachyarrhythmias
- Respiratory failure (any of the following: Po_2 <50 mm Hg, Pco_2 >45 mm Hg, FEV_1 <1.0 L, vital capacity <1.5 L)

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Seminars in
CEREBROVASCULAR DISEASES
and STROKE

No hay experiencia clínica acumulada

…la recomendación más habitual de los expertos es la colocación de un Filtro de Cava

oli are common preventable causes of mor-
cerebral hemorrhage (ICH). The frequency of
h acute ICH ranges from 0.5 to 13% in scant
eatment of these complications is to reduce
of intracranial rebleeding. There is a paucity

data are sparse and not su
is open for randomized tria
patients.
Semin Cerebrovasc Dis S

estima que la probabilidad de EP fatal si
a un EP o TVPproximal sintomáticos es
de alrededor del 25%, y sin embargo la probabilidad de resangrado intracraneal con tratamiento anticoagulante es (3-5 veces el espontaneo) de 3-5%, y “solo” la mitad de ellos fallecerá.

AHA/ASA Guideline

Guidelines for the Management of Spontaneous Intracerebral Hemorrhage

A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association

The American Academy of Neurology affirms the value of this guideline as an educational tool for neurologists.

The American Association of Neurological Surgeons and the Congress of Neurological Surgeons have reviewed this document and affirm its educational content.

Lewis B. Morgenstern, MD, FAHA, FAAN, Chair;
J. Claude Hemphill III, MD, MAS, FAAN, Vice-Chair; Craig Anderson, MBBS, PhD, FRACP;
Kyra Becker, MD; Joseph P. Broderick, MD, FAHA; E. Sander Connolly, Jr, MD, FAHA;
Steven M. Greenberg, MD, PhD, FAHA, FAAN; James N. Huang, MD; R. Loch Macdonald, MD, PhD;
Steven R. Messé, MD, FAHA; Pamela H. Mitchell, RN, PhD, FAHA, FAAN;
Magdy Selim, MD, PhD, FAHA; Rafael J. Tamargo, MD; on behalf of the American Heart Association Stroke Council and Council on Cardiovascular Nursing

Purpose—The aim of this guideline is to present current and comprehensive recommendations for the diagnosis and treatment of acute spontaneous intracerebral hemorrhage.

Methods—A formal literature search of MEDLINE was performed. Data were synthesized with the use of evidence tables. Writing committee members met by teleconference to discuss data-derived recommendations. The American Heart Association Stroke Council's Levels of Evidence grading algorithm was used to grade each recommendation. Prerelease review of the draft guideline was performed by 6 expert peer reviewers and by the members of the Stroke Council Scientific Statements Oversight Committee and Stroke Council Leadership Committee. It is intended that this guideline be fully updated in 3 years' time.

Results—Evidence-based guidelines are presented for the care of patients presenting with intracerebral hemorrhage. The focus was subdivided into diagnosis, hemostasis, blood pressure management, inpatient and nursing management, preventing medical comorbidities, surgical treatment, outcome prediction, rehabilitation, prevention of recurrence, and future considerations.

Conclusions—Intracerebral hemorrhage is a serious medical condition for which outcome can be impacted by early, aggressive care. The guidelines offer a framework for goal-directed treatment of the patient with intracerebral hemorrhage. (***Stroke***. **2010;41:2108-2129.**)

- En Agosto 2009 había en RIETE 27.029 pacientes ; 141 (0.5%) de ellos habían padecido una HIC reciente

Table I. Clinical characteristics, treatment strategies and 3-month outcome of 27,029 VTE patients with or without recent cerebral hemorrhage.

	Cerebral hemorrhage	No cerebral hemorrhage	p value
Patients, N	***141***	***26888***	
Clinical characteristics,			
Gender (males)	77 (55%)	13168 (49%)	0.206
Age (mean, IQR)	71 (58-77)	70 (56-79)	0.871
Age >70 years	76 (54%)	13377 (50%)	0.399
Body weight (mean, IQR)	70 (64-80)	73 (64-82)	0.054
Additional risk factors for VTE,			
Cancer	12 (8.5%)	5644 (21%)	<0.001
Prior VTE	6 (4.3%)	4190 (16%)	<0.001
Underlying diseases,			
Chronic lung disease	9 (6.4%)	2665 (9.9%)	0.201
Chronic heart disease	6 (4.3%)	1504 (5.6%)	0.711
CrCl levels <30 mL/min	9 (6.4%)	1706 (6.4%)	0.947
Initial VTE presentation,			
Pulmonary embolism	70 (50%)	12625 (47%)	0.612
Initial therapy,			
LMWH	116 (82%)	24270 (90%)	0.004
LMWH, IU/kg/day (mean, IQR)	133 (71-185)	187 (163-200)	<0.001
UFH	14 (9.9%)	2029 (7.6%)	0.264
UFH, IU/kg/day (mean, IQR)	267 (235-393)	360 (300-426)	0.043
Inferior vena cava filter	44 (31%)	560 (2.1%)	<0.001
No drug therapy	3 (2.1%)	171 (0.6%)	0.063
Long term therapy,			
Vitamin K antagonists	30 (21%)	18895 (70%)	<0.001
LMWH	95 (67%)	6532 (24%)	<0.001
LMWH, IU/Kg/day (mean, IQR)	110 (68-163)	150 (112-180)	<0.001
90-day outcome,			
Major bleeding	3 (2.1%)	588 (2.2%)	0.970
Fatal bleeding	0	156 (0.6%)	0.441
Recurrent DVT	5 (3.5%)	278 (1.0%)	0.017
Recurrent PE	4 (2.8%)	286 (1.1%)	0.067
Fatal PE	7 (5.0%)	426 (1.6%)	0.008
Fatal PE initial	4 (2.8%)	322 (1.2%)	0.093
Fatal PE recurrent	3 (2.1%)	104 (0.4%)	0.019
Overall death	14 (9.9%)	2103 (7.9%)	0.346

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	< 14	>14	p value
Pacientes, N	***52***	***81***	
Initial VTE presentation,			
With PE	27 (52%)	38 (47%)	0.59
TAS (mmHg)	127 ± 32	122 ± 25	0.35
pO2	64 ± 14	69 ± 18	0.23
Initial therapy,			
LMWH, IU/kg/day (X ± SD)	**120 ± 86**	139± 58	0.15
LMWH dosis <100 IU/kg/day	20 (39%)	17 (21%)	0.03
Inferior vena cava filter	20 (38%)	20 (25%)	0.12
No drug therapy	1 (1.9%)	2 (2.5%)	1.00
Eventos			
Hemorragia grave	2 (3.8%)	1 (1.2%)	0.56
Recurrencia TVP	4 (7.7%)	1 (1.2%)	0.08
Recurrencia EP	1 (1.9%)	3 (3.7%)	1.00
EP mortal	2 (3.8%)	5 (6.2%)	0.70
Mortalidad global	6 (12%)	8 (9.9%)	0.78

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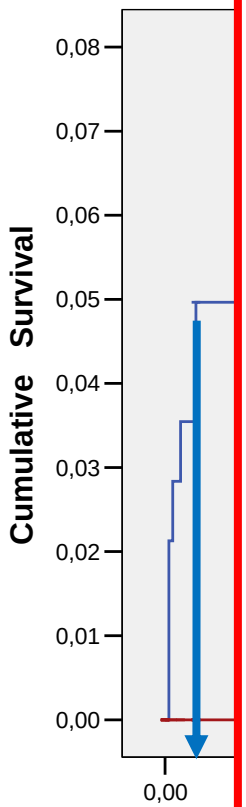
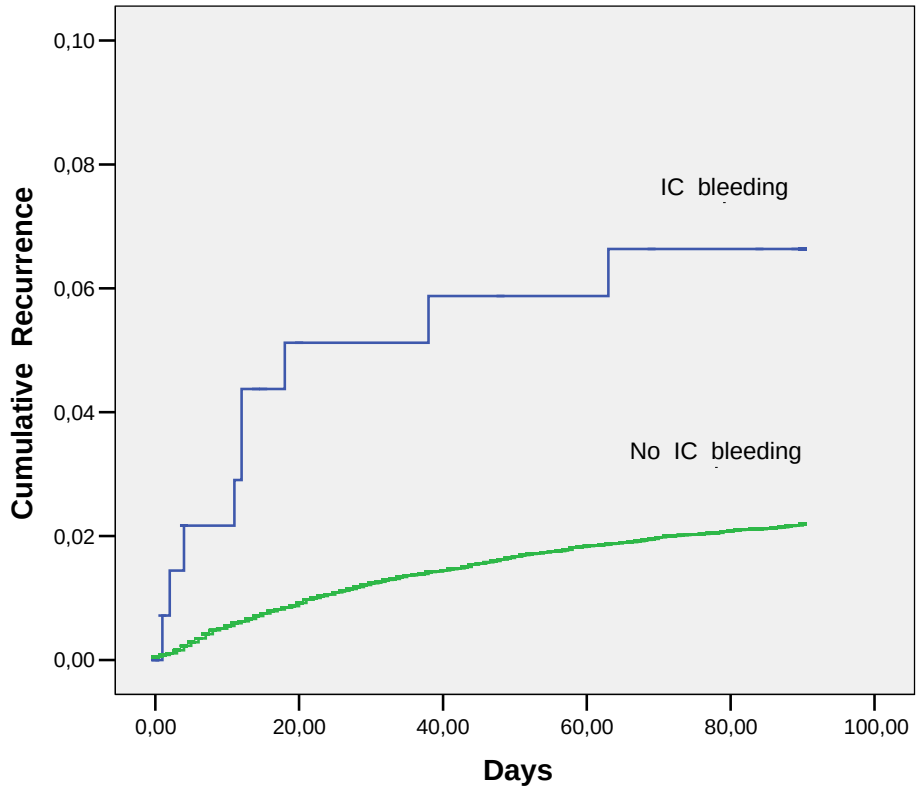
Recurrent DVT	5 (3.5%)	278 (1.0%)	0.017
Recurrent PE	4 (2.8%)	286 (1.1%)	0.067
Fatal PE	7 (5.0%)	426 (1.6%)	0.008
Fatal PE initial	4 (2.8%)	322 (1.2%)	0.093
Fatal PE recurrent	3 (2.1%)	104 (0.4%)	0.019
Overall death	14 (9.9%)	2103 (7.9%)	0.346

…the incidence of fatal PE was higher in patients with HIC (5.0% vs. 1.6%; OR: 3.2; 95% CI: 1.5-6.9).

Cumulative incidence of fatal pul
hemorrhage who subsequently d





Las recurrencias fueron 3 veces más frecuentes en los pacientes con HIC que en los pacientes normales

Todos los EP fatales se produjeron en la primera semana

Table IV. Univariate analysis for fatal PE or major bleeding.

	Fatal PE	No fatal PE	Major bleeding	No major bleeding
Patients, N	***7***	***134***	***3***	***138***
Clinical characteristics,				
Gender (males)	3 (43%)	74 (55%)	1 (33%)	76 (55%)
Age >70 years	4 (57%)	72 (54%)	0	76 (55%)
Body weight <	2 (29%)	27 (20%)	1 (33%)	28 (20%)
Inpatients	5 (71%)	102 (76%)	2 (67%)	105 (76%)
Additional risk factors for VTE,				
Cancer	1 (14%)	11 (8.2%)	0	12 (8.7%)
Prior VTE	0	6 (4.5%)	1 (33%)	5 (3.6%)
Underlying diseases,				
Chronic lung disease	0	9 (6.7%)	0	9 (6.5%)
Chronic heart failure	0	6 (4.5%)	0	6 (4.4%)
CrCl levels <30 mL/min	2 (29%)	77 (5.2%)	1 (33%)	8 (5.8%)
VTE presentation,				
Symptomatic PE	4 (51%)	66 (49%)	2 (67%)	68 (49%)
Initial therapy,				
Low-molecular-weight heparin	3 (43%)*	113 (84%)	3 (100%)	113 (82%)
LMWH dose IU/kg/day (mean, IQR)	81 (67-198)	133 (71-185)	100 (80-171)	133 (69-186)
Unfractionated heparin	2 (29%)	12 (9.0%)	0	14 (10%)
Inferior vena cava filter	0	44 (33%)	3 (100%)*	41 (30%)
Long term therapy,				
Vitamin K antagonists	0	30 (22%)	0	30 (22%)
Low-molecular-weight heparin	1 (14%)†	94 (70%)	3 (100%)	92 (67%)

Conclusiones I

- La ETV es frecuente tras un episodio de HIC grave
- La HBMP no esta contraindicada en la profilaxis
- No hay base experimental para realizar recomendaciones terapéuticas

Conclusiones II

- Las dosis “intermedias” de HBPM parecen relativamente seguras
- Con las pautas habituales la mortalidad por EP es muy superior a la morbimortalidad por hemorragia.
- En la práctica habitual se utilizan menos filtros de los que sería deseable.