

# **FARMACI ANTITROMBOTICI ED EMERGENZE CORRELATE: STRATEGIE D'INTERVENTO**

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# The incidence of bleeding complications associated with warfarin treatment in general practice in the United Kingdom

Jennifer Hollowell, Ana Ruigómez, Saga Johansson, Mari-Ann Wallander and Luis Alberto García-Rodríguez

British Journal of General Practice, April 2003

## SUMMARY

*The aim of this study was to estimate and explore the incidence of warfarin-related bleeding in a representative sample of patients in the United Kingdom. We identified 3958 patients aged 40 to 84 years, newly treated with warfarin and with no prior history of bleeding from the General Practice Research Database, and followed them for 12 months. The overall incidence of first-time, idiopathic bleeding was 15.2 per 100 patient-years of current warfarin exposure: the incidence of fatal/hospitalised and referred bleeding was 3.5 and 2.6 per 100 patient-years, respectively.*

# Terapia antitrombotica e Trauma

## Effect of Pre-existing Medical Conditions on In-Hospital Mortality: Analysis of 20,257 Trauma Patients in Japan

Tomohisa Shoko, MD, Atsushi Shiraishi, MD, PhD, Masahito Kaji, MD, PhD, Yasuhiro Otomo, MD, PhD

**BACKGROUND:** The average life expectancy of Japanese individuals is the longest in the world. The mortality rate from injury is increasing among older people. There have been no detailed reports on the relationship between pre-existing medical conditions (PMCs) and mortality from trauma among elderly people in Japan.

**STUDY DESIGN:** We conducted a retrospective analysis using 20,257 cases recorded in the Japan Trauma Data Bank from 2004 to 2007. The subjects were 11,590 hospital inpatients (57.2%) 16 years of age or older. A logistic regression analysis was conducted for the relation between 23 PMCs and in-hospital mortality.

J Am Coll Surg 2010 by the American College of Surgeons

# Terapia antitrombotica e Trauma

**Table 4.** Effects of Pre-existing Medical Conditions Stratified by Injury Severity Score

Predictor	Injury Severity Score					
	1–15 (n = 6,427)		16–24 (n = 2,516)		25+ (n = 2,647)	
	OR	95% CI	OR	95% CI	OR	95% CI
Psychotic disorders	0.8	0.3–2.0	0.6	0.3–1.3	1.0	0.8–1.4
Dementia/mental retardation	1.8	0.8–4.3	1.1	0.4–3.0	2.3	1.3–4.0
Bronchial asthma	1.6	0.7–3.7	0.4	0.1–1.6	0.4	0.2–0.8
Chronic obstructive pulmonary disease	9.5	3.9–23.3	1.5	0.2–12.2	0.7	0.1–4.0
Stroke	1.6	0.7–3.6	0.9	0.3–2.2	1.4	0.9–2.2
Congestive heart failure	4.0	1.6–9.7	3.4	1.3–8.6	0.7	0.3–1.6
Peptic ulcer	1.1	0.3–3.5	0.8	0.2–2.6	0.6	0.3–1.0
Hepatitis	1.2	0.3–4.5	3.6	1.6–8.2	1.1	0.5–2.5
Cirrhosis	11.6	5.2–25.7	4.9	1.5–15.9	10.6	3.1–36.2
Inflammatory bowel diseases	0.0	0.0–Inf	0.0	0.0–Inf	0.3	0.1–1.4
Active cancer	10.2	4.6–22.5	0.6	0.1–5.0	2.4	0.8–7.1
Marked obesity	0.0	0.0–Inf	0.0	0.0–Inf	0.0	0.0–Inf
Hematologic disorders	6.1	0.8–46.8	9.6	1.2–76.9	1.1	0.3–4.2
Use of anticoagulation drugs	7.7	1.6–37.2	3.8	1.2–12.0	1.5	0.6–3.8
Other conditions	1.5	0.9–2.6	1.1	0.7–1.7	1.1	0.8–1.4

Inf, too large to show; OR, odds ratio.

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## ONLINE FIRST

# Prevalence and Implications of Preinjury Warfarin Use

## *An Analysis of the National Trauma Databank*

Lesly A. Dossett, MD, MPH; Johanna N. Riesel, MD;  
Marie R. Griffin, MD, MPH; Bryan A. Cotton, MD, MPH

**Objectives:** To describe the prevalence of preinjury warfarin use in a large national sample of trauma patients and to define the relationship between preinjury warfarin use and mortality.

**Design:** Retrospective cohort study.

**Setting:** The National Trauma Databank (7.1).

**Patients:** All patients admitted to eligible trauma centers during the study period; 1 230 422 patients (36 270 warfarin users) from 402 centers were eligible for analysis.

**Main Outcome Measures:** Prevalence of warfarin use and all-cause in-hospital mortality. Multivariate logistic regression was used to estimate the odds ratio (OR) for mortality associated with preinjury warfarin use.

**Results:** Warfarin use increased among all patients from 2.3% in 2002 to 4.0% in 2006 ( $P < .001$ ), and in patients

older than 65 years, use increased from 7.3% in 2002 to 12.8% in 2006 ( $P < .001$ ). Among all patients, 9.3% of warfarin users died compared with only 4.8% of nonusers (OR, 2.02; 95% confidence interval [CI], 1.95-2.10;  $P < .001$ ). After adjusting for important covariates, warfarin use was associated with increased mortality among all patients (OR, 1.72; 95% CI, 1.63-1.81;  $P < .001$ ) and patients 65 years and older (OR, 1.38; 95% CI, 1.30-1.47;  $P < .001$ ).

**Conclusions:** Warfarin use is common among injured patients and its prevalence has increased each year since 2002. Its use is a powerful marker of mortality risk, and even after adjusting for confounding comorbidities, it is associated with a significant increase in death.

*Arch Surg.* 2011;146(5):565-570. Published online January 17, 2011. doi:10.1001/archsurg.2010.313

# Prevalence and Implications of Preinjury Warfarin Use

*An Analysis of the National Trauma Databank*

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January 17, 2011. doi:10.1001/archsurg.2010.313

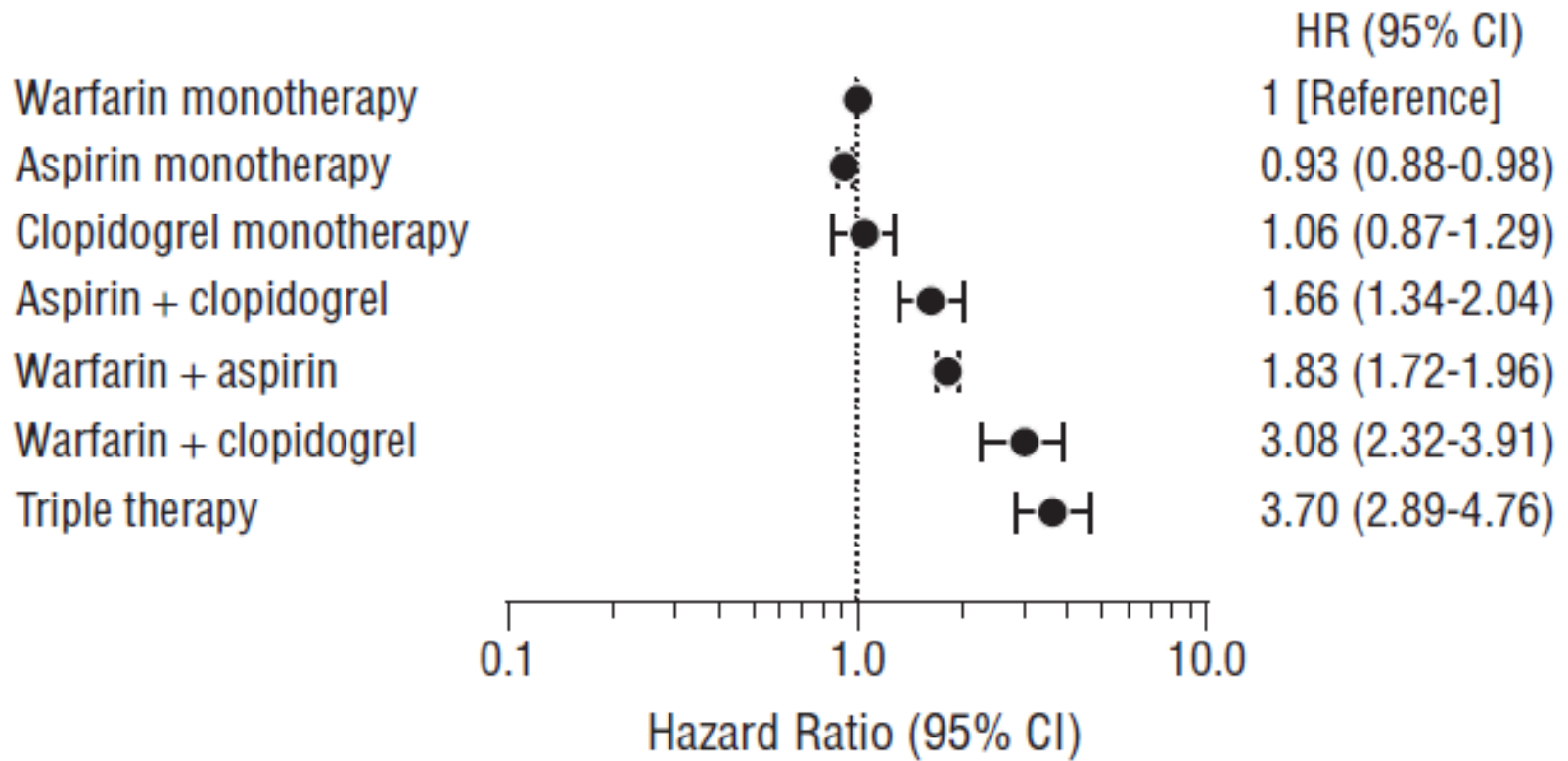
**Table 4. Multivariate Analysis of Mortality for All Patients<sup>a</sup>**

	OR (95% CI)	P Value
Warfarin use	1.72 (1.63-1.81)	<.001
Male	1.49 (1.44-1.52)	<.001
Age (per year)	1.02 (1.018-1.019)	<.001
TRISS (per 0.1-point increase)	0.669 (0.667-0.671)	<.001
Race		<.001
Asian	1 [Reference] <sup>b</sup>	
Black	1.19 (1.06-1.33)	.002
Hispanic	0.95 (0.84-1.07)	.39
Native American	0.51 (0.42-0.62)	<.001
White, not Hispanic	0.20 (0.17-0.22)	<.001
Other	0.88 (0.78-0.98)	.02
Presence of COPD	1.13 (1.03-1.26)	.01
Presence of coronary artery disease	1.62 (1.07-2.43)	.02
Dialysis dependence	1.86 (1.72-2.02)	<.001
Chronic lung disease, nonemphysematous	1.27 (1.18-1.37)	<.001
Facility	<sup>c</sup>	<.001

## Risk of Bleeding With Single, Dual, or Triple Therapy With Warfarin, Aspirin, and Clopidogrel in Patients With Atrial Fibrillation

Morten L. Hansen, MD, PhD; Rikke Sørensen, MD; Mette T. Clausen, MSc Pharm; Marie Louise Fog-Petersen, MSc Pharm; Jakob Raunso, MD; Niels Gadsbøll, MD, DMSc; Gunnar H. Gislason, MD, PhD; Fredrik Folke, MD; Søren S. Andersen, MD; Tina K. Schramm, MD; Steen Z. Abildstrøm, MD, PhD; Henrik E. Poulsen, MD, DMSc; Lars Køber, MD, DMSc; Christian Torp-Pedersen, MD, DMSc

**HR per il rischio di sanguinamento fatale e non fatale associato a diverse combinazioni farmacologiche**



# Hospital admissions for intracerebral haemorrhage

increased by 18% in the past 10 years

Probably because of increases in the number of elderly people, many of whom lack adequate blood-pressure control, and the increasing use of anticoagulants, thrombolytics, and antiplatelet agents.

Qureshi AI, Suri MFK, Nasar A, et al. Changes in cost and outcome among US patients with stroke hospitalized in 1990 to 1991 and those hospitalized in 2000 to 2001. *Stroke* 2007;



# Emorragia cerebrale: la complicanza più temuta della terapia antitrombotica

- >10% delle emorragie cerebrali si verificano in pazienti in terapia antitrombotica
- Le emorragie cerebrali durante il trattamento con anticoagulanti sono più frequentemente fatali (75-80%)
- Rispetto al placebo, la terapia antitrombotica aumenta il rischio di emorragia cerebrale:
  - ~ 40% aspirina
  - ~ 200% warfarin (INR 2–3; aumenta fino allo 0.3–0.6%/anno)

# L'uso di farmaci antitrombotici predispone alle micro-emorragie cerebrali

Le microemorragie cerebrali hanno una prevalenza del 5.7% (range 3.7-7.7%) e sono più frequentemente osservabili con l'avanzare dell'età.

In questo studio riguardante 1062 persone di età uguale o maggiore ai 60 anni, la risonanza magnetica dell'encefalo ha dimostrato che l'uso di farmaci anti-trombotici predispone alle micro-emorragie cerebrali; infatti lesioni sono risultate del 70% più frequenti in coloro che facevano uso di inibitori della aggregazione piastrinica rispetto ai controlli che non ne facevano uso (adjusted odds ratio [OR], 1.71; 95% confidence interval [CI], 1.21-2.41). In particolare, i pazienti in trattamento con ASA hanno manifestato una prevalenza più grande di microsanguinamenti strettamente lobari rispetto ai controlli (OR per l'ASA users vs non-users, 2.70; 95% CI, 1.45-5.04) [1].

1 – Vernooij MW, Haag MDM, van der Lugt A, et al. Use of Antithrombotic Drugs and the Presence of Cerebral Microbleeds: The Rotterdam Scan Study. Arch Neurol. 2009;66:714-720

2 – Thompson BB et al. Prior antiplatelet therapy and outcome following intracerebral hemorrhage: A systematic review. Neurology 2010 Oct 12; 75:1333

# Stroke registry: hemorrhagic vs ischemic strokes

Joseph R. Shiber MDa, Emily Fontane MDa, Ademola Adewale MDb

We conducted a retrospective review for 1 year of all patients discharged from the hospital, a regional stroke center, with a diagnosis of stroke; we compared ischemic to hemorrhagic stroke types.

**Results:** There were 757 patients included. Of the patients, 41.9% were hemorrhagic and 58.1% were ischemic.

**American Journal of Emergency Medicine (2010) 28, 331–333**

# Chronic subdural haematomas and anticoagulation or anti-thrombotic therapy

Tilman Rust \*, Nicole Kiemer, Albert Erasmus

- There is evidence that use of warfarin or aspirin come with a **higher incidence of chronic subdural haematomas (CSDH)**.
- Several studies have examined this question. While warfarin reduces the risk of stroke by about two-thirds (from 5% to 2% per year) thus it will prevent about 30 strokes per 1000 patient-years, at a cost of 5–8 serious bleeding episodes (intracranial haemorrhage or systemic haemorrhage requiring blood transfusion).



# Sanguinamento acuto in Ematoma subdurale cronico in paziente scoagulato



# Advanced Age and Preinjury Warfarin Anticoagulation Increase the Risk of Mortality After Head Trauma

Jan Franko, MD, PhD, Karen J. Kish, MD, Brendan G. O'Connell, MD, Sujata Subramanian, MD, and James V. Yuschak, MD, FACS

**Background:** A large population of patients on oral anticoagulants is exposed to the risk of traumatic brain injury (TBI). Effects of age and anticoagulation on TBI outcomes need to be assessed separately.

**Methods:** Retrospective analysis of consecutive series of TBI patients (age 18 years and older) in a suburban teaching hospital.

**Results:** A total of 1,493 adult blunt head trauma patients between January 2001 and May 2005 were analyzed. Of these, 159 patients were warfarin-anticoagulated at the time of trauma. The mortality in an-

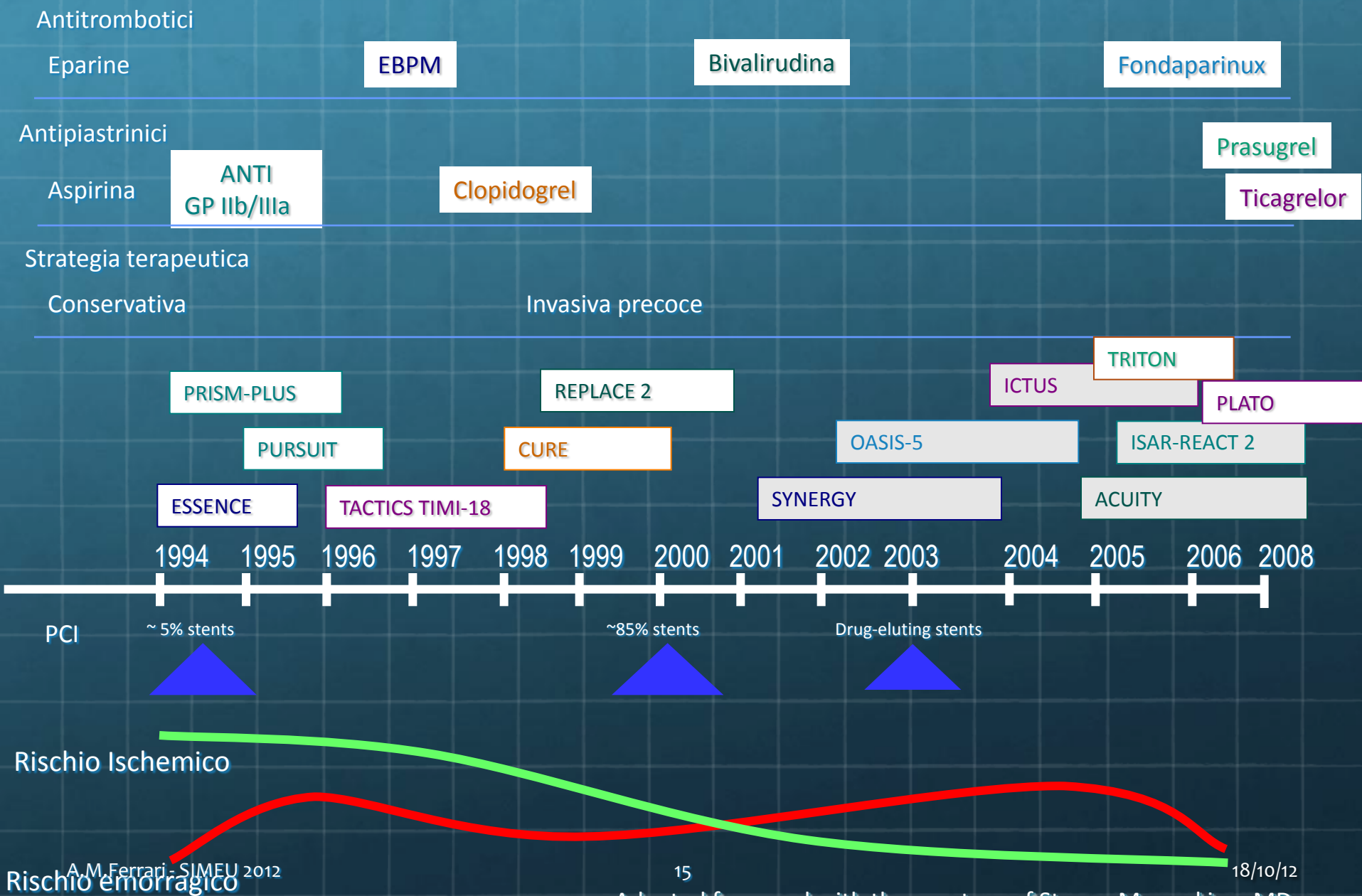
ticoagulated patients was statistically significantly higher than in the control group (38/159, 23.9% vs. 66/1,334, 4.9%;  $p < 0.001$ ; odds ratio 6.0). Mortality of patients over 70 years of age was significantly higher than in the younger population ( $p < 0.001$ ). Both mortality and the occurrence of intracranial hemorrhage (ICH) after head trauma were significantly increased with higher INR (Cochran's linear trend  $p < 0.001$ ), especially with INR over 4.0 (mortality 50%, risk of ICH 75%). Preinjury warfarin anticoagulation and age were found to be predictive of survival in a binary logistic regression model (92.5% correct prediction,  $p =$

0.027). Addition of Injury Severity Score and initial Glasgow Coma Score to this model only modestly improved its predictive performance (95.4% correct prediction,  $p < 0.001$ ).

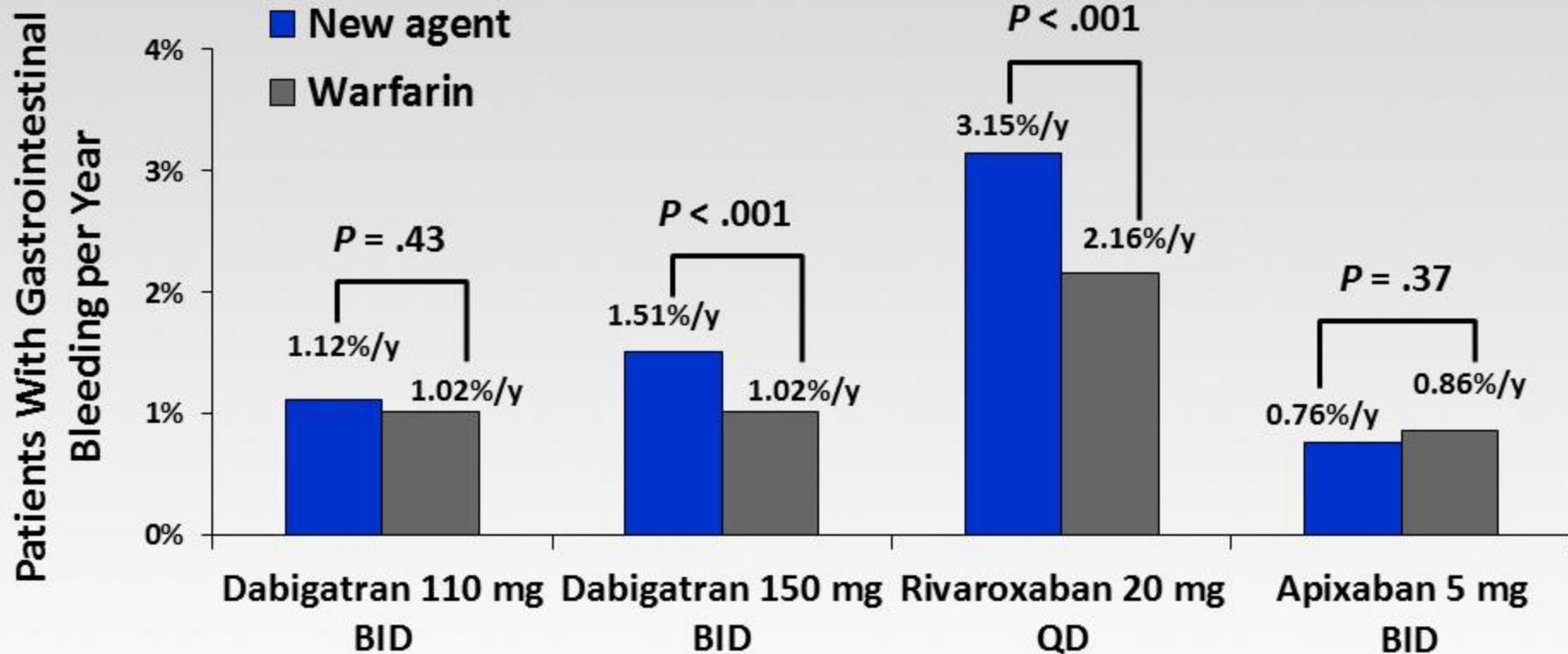
**Conclusions:** Both age and warfarin anticoagulation are independent predictors of mortality after blunt TBI. Warfarin anticoagulation carries a six-fold increase in TBI mortality. Age over 70 years and excessive anticoagulation are associated with higher mortality, as well.

**Key Words:** Trauma, Coumadin, Traumatic intracranial hemorrhage.

# Pietre miliari nella gestione delle SCA



# Recent Oral Anticoagulation Trials: Gastrointestinal Bleeding



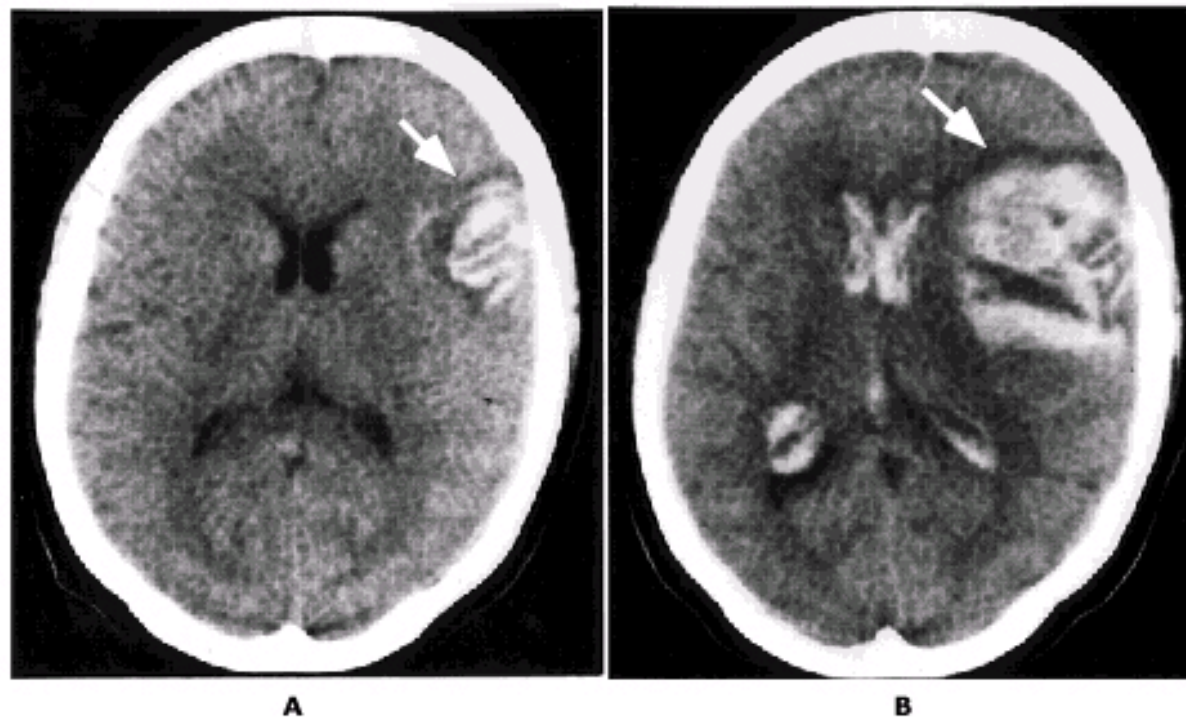
Connolly SJ, et al. *N Engl J Med*. 2009;361:1139–1151.

Patel MR, et al. *N Engl J Med*. 2011;365:883–891.

Granger C, et al. *N Engl J Med*. 2011;365:981–992.



## Progression of an intracerebral hemorrhage in an anticoagulated patient






A 24-year-old woman with a prosthetic mitral valve presented to the emergency department with trouble speaking and headache that was suspected to be "hysterical" until a CT scan (Panel A) demonstrated an intracerebral hemorrhage (ICH) near Broca's area (arrow). The INR at this time was 3.2. She developed progressive weakness, stupor, and coma, with a repeat CT scan (Panel B) showing enlargement of the ICH (arrow). She died the next day from brain herniation.

*Courtesy of Robert G Hart, MD.*

# The Contentious Areas

The Contentious Areas in Minor Head Injury in anticoagulated patients include:

-  ... the appropriate use of CT scanning...
-  ... the necessity for admission and observation...
-  ... withholding warfarin post-injury for a specified period of time plus or minus rapid reversal of oral anticoagulant therapy...

## Clinical Policy: Neuroimaging and Decisionmaking in Adult Mild Traumatic Brain Injury in the Acute Setting

*Ann Emerg Med. 2008;52:714-748*

**“To date, there have not been any studies that have had sufficient power to address specific subpopulations of patients with mild TBI who may be at additional risk for delayed complications and for whom immediate ED discharge after a negative head CT scan result may not be appropriate. These subpopulations could include patients with bleeding disorders, patients on anticoagulant therapy, patients with previous neurosurgical procedures “**

# The Nice Guidelines (2007)



The “Nice head injury guidelines”, suggest:

1. an urgent (<1 h) CT scan for those patients with a history of bleeding, clotting disorder or current treatment with warfarin and a loss of consciousness or amnesia
2. using ‘ ‘clinical judgement’ ’ when dealing with patients on antiplatelet treatment and those on warfarin who have not experienced any loss of consciousness or amnesia.



**Table 1** Current National Institute for Health and Clinical Excellence guidelines on CT imaging in patients with head injury

Indications for urgent (<1 h) CT imaging of the head	Indications for less urgent (<8 h) CT imaging of the head (providing no indications for urgent CT imaging present)
GCS <13 on initial assessment	Amnesia for >30 min before impact
GCS <15 at 2 h postinjury	Age >65 years providing some LOC or amnesia
Suspected open or depressed skull fracture	Dangerous mechanism of injury
Any sign of basal fracture	
>1 episode of vomiting (adults), >3 (children)	
Post-traumatic seizure	
Coagulopathy* providing some LOC or amnesia	
Focal neurological deficits	

GCS, Glasgow Coma Scale; LOC, loss of consciousness; NICE, National Institute for Health and Clinical Excellence.

\*Coagulopathy: history of bleeding, clotting disorder, current treatment with warfarin.

# Predicting intracranial lesions by antiplatelet agents in subjects with mild head injury

Andrea Fabbri,<sup>1</sup> Franco Servadei,<sup>2</sup> Giulio Marchesini,<sup>3</sup> Sherman C Stein,<sup>4</sup>

Alberto Vandelli<sup>1</sup> *J Neurol Neurosurg Psychiatry* 2010 81: 1275-1279 originally published online July 18, 2010

**Background** The effect of pre-injury antiplatelet treatment in the risk of intracranial lesions in subjects after mild head injury (Glasgow Coma Scale (GCS) 14–15) is uncertain.

**Methods** The potential risk was determined, considering its increasing use in guidelines on cardiovascular disease prevention, and ageing of the trauma population in Europe.

**Patients** The interaction of antiplatelet therapy with the prediction variables of main decision aids was analysed in 14 288 consecutive adolescent and adult subjects with mild head injury.

**Measurements** Any intracranial lesion at CT scan was selected as an outcome measure in a multivariable logistic regression analysis.

**Results** Intracranial lesions were demonstrated in 880 cases (6.2%), with an unfavourable outcome at 6 months in 86 (0.6%). Antiplatelet drugs were recorded in 10% of the entire cohort (24.7% in the group over 65 years). They increased the risk of intracranial lesions in the univariate analysis (OR 2.6; 95% CI 2.2 to 3.1), interacting with age in the multivariate analysis (antiplatelet OR 2.7 (1.9 to 3.7); age  $\geq 75$  years 1.4 (1.0 to 1.9)). The inclusion of these two variables with those included in previous decision aids for CT scanning (GCS, neurodeficit, post-traumatic seizures, suspected skull fracture, vomiting, loss of consciousness, coagulopathy) predicted intracranial lesions with a sensitivity of 99.7% (95% CI 98.9 to 99.8) and a specificity of 54.0% (95% CI 53.1 to 54.8), with a CT ordering rate of 49.3% (undetermined events 0.2:1000).

**Interpretation** Antiplatelet drugs need to be considered in future prediction models on mild head injury, considering their increasing use and progressive ageing of the trauma population.

# The Appropriate Use of CT Scanning (1.a)

## Emergency management of minor head injury in anticoagulated patients

A Leiblich, S Mason

*Emerg Med J* 2011;**28**:115–118. doi:10.1136/emj.2009.079442

**Table 1** Studies examining the incidence of intracranial haemorrhage (ICH) in anticoagulated patients

Study	No of patients in study	% Of patients anticoagulated	Incidence of ICH in anticoagulated patients	Country of origin
Li <i>et al</i> <sup>11</sup>	144	100% (144)	6.2% (9/144)	USA
Lavoie <i>et al</i> <sup>13</sup>	384	9% (35)	Incidence of ICH not measured—mortality only	Canada
Fabbri <i>et al</i> <sup>12</sup>	501	13% (66)	24% (16/66)	Italy
Reynolds <i>et al</i> <sup>14</sup>	32	100% (32)	25% (8/32)	USA
Gittleman <i>et al</i> <sup>16</sup>	89	100% (89) 66% GCS=15, 33% GCS≤14	30.4% if GCS≤14, 0% if GCS=15	USA

**There is no evidence base to suggest the most appropriate threshold for obtaining a CT scan in this group of patients**

# The Necessity for Admission and Observation

## A retrospective review of patients with head injury with coexistent anticoagulant and antiplatelet use admitted from a UK emergency department

J Major,<sup>1</sup> M J Reed<sup>2</sup>

*Emerg Med J* 2009;**26**:871–876. doi:10.1136/emj.2008.068643

### ABSTRACT

**Background and aim:** Conflicting evidence exists surrounding the increased risk of adverse outcome conferred by preinjury anticoagulant and antiplatelet treatment in patients with head injury. The aim of this study was to determine the epidemiology of patients with head injury on anticoagulant and antiplatelet treatment admitted to a hospital from an emergency department (ED).

**Methods:** This was a retrospective analysis of all patients with head injury admitted to a hospital from a major UK ED between 1 January 2005 and 31 December 2007.

**Results:** 399 patients met the inclusion criteria. 110 patients underwent CT, with 24 having traumatic haemorrhage. Of 271 patients on aspirin, 75 (28%) underwent CT, with 19 of these (25%) having traumatic haemorrhage. Of 89 patients on warfarin, 27 (30%) underwent CT, with 4 of these (15%) having traumatic haemorrhage. Seven of the 24 (29%) patients with traumatic haemorrhage on CT did not undergo urgent ED scanning. All these patients were on aspirin.

**Conclusions:** This study confirms the need for caution in the early discharge of patients with head injury taking anticoagulant medication. This study also raises concerns that patients taking antiplatelet medication prior to injury may also be at high risk of developing covert serious intracranial haemorrhage and suggests the need for a well-designed cohort study looking at antiplatelet risk in head injury.

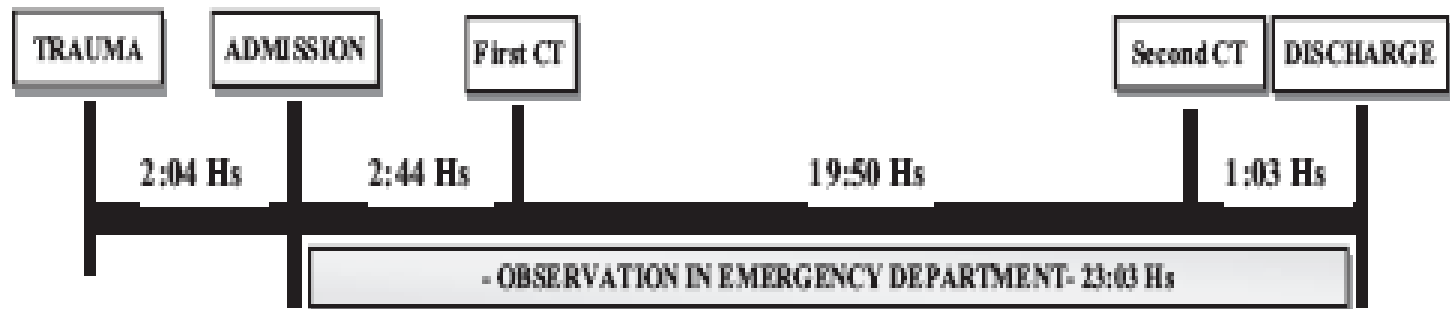


# The Necessity for Admission and Observation

## The Value of Sequential Computed Tomography Scanning in Anticoagulated Patients Suffering From Minor Head Injury

*Ariel Kaen, MD, Luis Jimenez-Roldan, MD, Ignacio Arrese, MD, Manuel Amosa Delgado, MD, Pedro Gomez Lopez, MD, PhD, Rafael Alday, MD, PhD, José Fernández Alen, MD, PhD, Alfonso Lagares, MD, PhD, and Ramiro D. Lobato, MD, PhD*

**Background:** Since 1999, the Italian guidelines have been used at our department for the management of patients with mild head injury (MHI). According to these guidelines, a computed tomography (CT) scan should be obtained in all patients with coagulopathy and these should routinely undergo



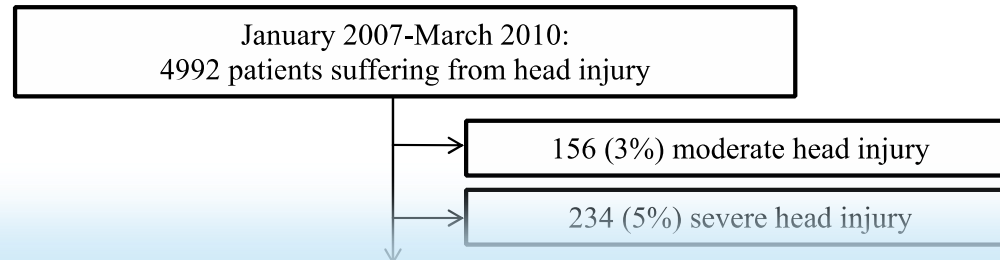
Median time between different stages of the study.

**Results:** One hundred thirty-seven patients were included in this study. Only two patients (1.4%) showed hemorrhagic changes. However, neither of them developed concomitant neurologic worsening nor needed admitting or surgery.

**Conclusion:** According with our data, patients on anticoagulation treatment suffering from MHI could be managed with strict neurologic observation without routinely performing a control CT scan that can be reserved for the rare patients showing new clinical symptoms.

**Key Words:** Traumatic brain injury, Anticoagulation, Outcome, Mild head trauma.

(*J Trauma.* 2010;68: 895–898)



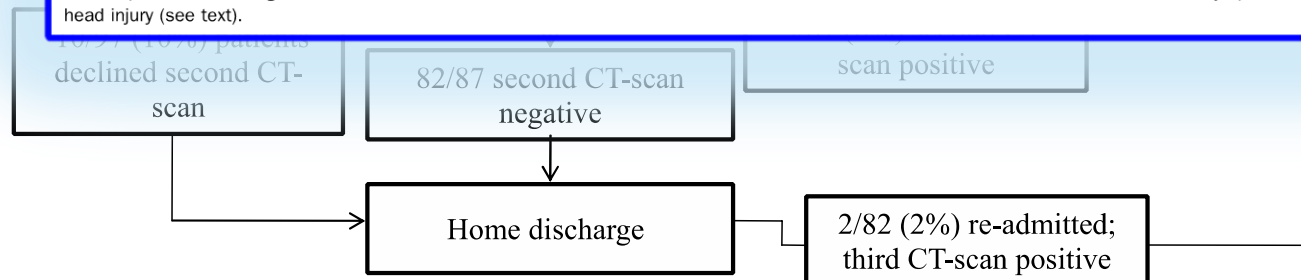
**Table 2.** Characteristics of patients with minor head injury and clinically important CT scan abnormality on second or third CT scan.

Patient	Age, Years	Sex	Mechanism of Injury	Indication for Warfarin	INR	CT Scan	Admission Because of Head Trauma	Neurosurgery
1	68	Female	Accidental trauma	AF	3.8	IC	No*	No
2	78	Male	Accidental trauma	VRS	2.4	IC	Yes	Yes
3	87	Male	Accidental trauma	AF	3.1	SH	Yes <sup>†</sup>	No
4	77	Female	Syncope	AF	3.2	SH	Yes <sup>†</sup>	No
5	88	Male	Syncope	AF	1.4	IC	Yes	No
6	78	Male	Syncope	AF	2.1	IC	No*	No
7	87	Female	Accidental trauma	AF	3.3	IC	Yes	No

AF, Atrial fibrillation; IC, intracranial bleeding; VRS, valve replacement surgery; SH, subdural hematoma.

\*Minimal intracranial bleeding.

<sup>†</sup>These patients, discharged after 24 hours of observation with no evidence of intracranial lesions, were readmitted to the ED because of symptoms related to the head injury (see text).



Please see page 452 for the Editor's Capsule Summary of this article.

# REVERSE EMORRAGICO NEI DEA ITALIANI (2003 – 2004)

<b>Vitamina K</b>	<b>40,5%</b>
<b>Plasma fresco</b>	<b>21,6%</b>
<b>CCP</b>	<b>6%</b>
<b>rf VIIa</b>	<b>2,6%</b>

**Ricoagulato 1 paziente su 3**

# **STUDIO PROMPT - I**

## **EMORRAGIA CEREBRALE IN CORSO DI TERAPIA ANTICOAGULANTE ORALE: REGISTRO PROSPETTICO MULTICENTRICO**





*Gruppo di lavoro intersocietario Siset-SIMEU*  
*Dott. Davide Imberti-Prof. Gualtiero Palareti (Siset)*  
*Dott. Gianfranco Cervellin-Dott.ssa Annamaria Ferrari (SIMEU)*

**Coordinatore: Dott. Davide Imberti**  
**UNITA' OPERATIVA MEDICINA INTERNA**  
**Ospedale di Piacenza**  
**ASL Piacenza**



# Obbiettivi

*Il presente studio di registro si propone di :*

-  osservare le modalità di presentazione clinica dei pazienti afferenti ai Dipartimenti di Emergenza (DEU) per EIC in pazienti in TAO;
-  identificare gli eventuali fattori di rischio;
-  raccogliere informazioni relative alle strategie terapeutiche;
-  registrare l' outcome

# The Effects of Antiplatelet Therapy on Outcome of Subjects with Intracranial Injury: the Italian SIMEU Study

**Authors: Andrea Fabbri, \*Franco Servadei, § Giulio Marchesini, \*Carolina Bronzoni, § Danilo Montesi, § Luca Arietta on behalf of the Società Italiana di Medicina d'Emergenza Urgenza Study Group<sup>°</sup> .**

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**\*Unità Operativa di Neurochirurgia, Azienda Ospedaliero-Universitaria di Parma, Italy.**

**§ *Alma Mater Studiorum*, Università di Bologna, Italy.**

**IN CORSO DI PUBBLICAZIONE**

Patients: 1.558 adult subjects with mild, moderate and severe head injury admitted to Italian EDs.

Measurements: Short-term outcome was measured by CT worsening in Marshall category at 24-72 hour. Long term outcome tested by Glasgow outcome scale (GOS) at logistic analysis.

Interpretation: Antithrombotic therapy (in particular, clopidogrel) is a risk factor for short-term outcome in subjects with head injury. Antiplatelet therapy is also associated with 50% increased risk of long-term unfavourable outcome.

# Grazie dell'attenzione